# Industrial Standardization

and Commercial Standards Monthly



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November

1935

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## Radio Interference Is Problem Of New ASA Coordination Committee

RADIO broadcasting is doubtlessly now verging on the end of the first era of its existence, and the historian of the future who examines the development of broadcasting will doubtless describe this period as one untold, uninterrupted intensity of development of both broadcast receiving and transmitting equipment.

It is fact that in the field of radio broadcasting equipment, apparatus capable of almost perfect fidelity in transmission of speech and music has been devised and is commonly in use. There have also been developed and given trial transmitters of such high power as to verge upon, if not actually to have reached the point of lack of economic justification. Similarly, receiving equipment has been evolved and is now entering common use with such characteristics that leaves little to be desired from any standpoint.

But, there is yet left one serious impediment in the development of radio broadcasting and its younger brother radio television, which, unless great effort is provided for its elimination, will prevent these applications of radio to the life of the nation from reaching the full flower of their possibilities.

This impediment resides in the interesting fact that practically all types and forms of commonly used electrical equipment are capable of generating radiation of the very type which makes broadcasting possible, and, in fact, do supply such radiation much to the detriment of the radio systems on which they impose themselves.

#### Interference Sources Are Many

Every one of the electrical structures in common use is capable of supplying this highly undesired interference. The door bell or the annunciator which announces your visitors can, and often does, interfere as seriously with the reception of your radio program as does the highpower electrical distribution system which supplies the immense electric power required by your city.

The second era in the development of radio broadcasting will doubtless be characterized by the improvement of the conditions under which Radio - Electrical Coordination Group to Develop Standards for Reducing "Man-Made" Interference

Manufacturers, Radio Set Owners, and Broadcasting Stations Will All Profit by Work of New Committee

broadcasting is done, largely through the reduction of the interfering influences which are now present. It is in the field of the reduction of these interferences that the efforts of the new American Standards Association Committee on Radio-Electric Coordination is directed. Causes of radio interference will be carefully studied and standards will be written to help both the radio designer and the owner of radio sets to eliminate some of the interference with radio reception in the home.

#### Radio Suffers Lack of Standards

As in the case of all fields of new developments and inventions, radio has suffered from the lack of standardization. In the nature of things this could not have been prevented, but the time has come, many engineers believe, when standards are needed and radio development will be greatly benefitted if sound and reasonable standards can be written to solve some of the fundamental troubles we face.

Some types of interference cannot be eliminated because of our limited knowledge of the phenomena involved. Natural electrical disturbances resulting from thunder storms and such other sources which are commonly termed static bid fair to continue to limit perfect radio reception in the home; but in the field of the many forms of "man-made interference" progress has already been made and much more may be expected in the future in the elimination of radio interference.

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#### All Interested Groups Will Work On Radio-Electrical Coordination

In line with the procedure of the American Standards Association, every group having an interest in a given project is invited to name representatives to serve on the committee which develops standards. At a meeting called by the sponsor, the Radio Manufacturers Association, the following men were elected officers of the sectional committee on Radio-Electrical Coordination:

W. R. G. Baker, Chairman, Engineering Division, Radio Manufacturers Association, Chairman

L. C. F. Horle, Consulting Engineer, Vice-Chairman

Virgil M. Graham, Chairman, Standards Section, Radio Manufacturers Association, Secretary

### Among the groups which will be invited to send representatives are:

Radio Manufacturers Association American Institute of Electrical Engineers American Radio Relay League American Transit Association Association of American Railways ASA Electric Light and Power Group

Association of Edison Illuminating Companies Edison Electric Institute

Edison Electric Institute ASA Telephone Group

Bell Telephone System
U. S. Independent Telephone Association
Department of Marine (Canada)
Federal Communications Commission
Institute of Radio Engineers
Institute of Radio Service Men
National Association of Broadcasters
National Electrical Manufacturess Association

National Electrical Manufacturers Association Radio Club of America Radio Manufacturers Association of Canada

Radio Wholesalers Association Society of Automotive Engineers U. S. Department of Commerce—National Bu

U. S. Department of Commerce—National Bureau of Standards

The committee will add representatives from other groups from time to time as the occasion arises.

Many of the motors used in electrical appliances in the home are potential radio interferers. Many vacuum cleaners, orange juice extractors, electric fans, washing machines, refrigerators, etc., cause trouble. A most encouraging sign, however, is the fact that many manufacturers of such appliances have done something to reduce inter-

ference, for instance, by filtering the supply and then keeping the supply leads as short as possible.

Radio and other electrical engineers have found, for example, that much may be accomplished by limiting the size of the electrical system in which interruption takes place in a given motorized electrical device. By thus reducing the coupling in respect to the radio receiver a great deal of the interference can be eliminated.

#### Will Develop Simple Suggestions

Some of us believe that an important phase of this committee's work will be to develop some simple recommended practices which will give the average radio owner some simple things to do which will help him to eliminate man-made electrical interference which occurs in his home.

For example, the slight arcing of an electric lamp bulb—just before it burns out—is a source of a great deal of trouble. Checking this is simple. One only has to switch off all the lights in the house, one at a time, while noise is coming through the set. When he comes to the source of the trouble, if it is caused by a broken filament, the noise will stop. He will replace the bulb with a new one, and the trouble will be ended. Loose, badly fitting connections such as plugs and switches often cause a great deal of trouble.

Flashing electric signs cause trouble, too, when the set is nearby. The set owner can't do much about this, but we expect that standards of permissible disturbances can be developed which with the cooperation of the sign manufacturer and the sign owner, will entirely eliminate this trouble. Neon signs sometimes cause interference. Here, too, standards would be helpful to sign manufacturers, radio service men, and set owners.

The use of radio sets in automobiles has brought the problem home to motor vehicle manufacturers. Already much has been done by the automobile designer in the direction of the reduction of interference from this source, and we expect to get a great deal of help in this respect from members of the Society of Automotive Engineers, who have done a fine job already in making researches on this problem.

#### ASA Is Clearing-House

The clearing-house methods of the American Standards Association—which brings together experts of all industries who by the nature of things have a stake in this problem—will allow the committee to have the benefit of all research work on all phases of this problem. These men, representing as they do all interested groups, will do the actual work of developing the standards. Their various experiences and points of view are

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essential if real progress is to be made in eliminating man-made interference.

It seems to some of us that a function of the committee is to find generally acceptable standards and recommended practices to solve their problem. In doing so, of course, the committee will be serving the ultimate consumer or user of radios and the radio manufacturers.

Any such recommendations, if and when approved by the American Standards Association, will have immediate status. The committee, in establishing the highly technical ratios of limitation of interference, at the same time will produce simple standards to guide radio parts makers and set makers in the best practice to reduce manmade interference.

#### Will Aid Television Development

But the benefits which should accrue from the work of this committee will be of utmost importance in developing television. Far beyond the band of present radio frequencies is a virtually unexplored range of ultra-high frequencies. Some fine work has been done here in this high-frequency range, but it is already evident that manmade interference is worse in this range than in the 500 to 1500 kilocycle range used by the speaking radios today.

It is to be borne in mind that in the ultra-high-frequency portion of the radio spectrum will doubtless be found place not only for additional sound broadcasting but for television broadcasting as well. And, it is to be remembered that the inherent characteristics of human sight as compared with that of human hearing will require a far greater freedom from interference in a television system than is now found tolerable in sound broadcasting.

In support of this, it need only be remembered how effective is the human capacity for concentration on desired sounds through the repression of consciousness of undesired sounds.

Unless something is done to curb this interference, the cost of television equipment, both transmitting and receiving, will be prohibitive, to say the least.

I will be greatly disappointed if, through our work in this committee, we cannot solve many problems with which the designers of both the present type of audio radio and television are confronted.

If we reach our goal in this work, the work of radio set designers will be simplified, because we will have developed standards for measuring the susceptibility of receivers to noise.

This work will not be pioneering. The Radio Manufacturers Association has a committee on this problem and a lot of fine work has been done already. We will correlate this work with other investigations by other groups.

#### Television and Today's Radio To Be Benefitted

Tomorrow's television and today's radio will both be immeasurably benefitted by the work of the new ASA Committee on Radio-Electrical Coordination. This group of experts has undertaken to establish standards to eliminate some of the man-made interference which causes so much trouble to radio owners.

Mr. Lawrence C. F. Horle, who explains some of the problems confronting the committee in this article, has had long experience in radio work. From the faculty of Stevens Institute of Technology, he was called into war service by the U. S. Navy, and he directed research and development of naval radio receiving and transmitting equipment.

Then as chief engineer, DeForest Radio Telephone and Television Company, he directed the development of its products. For four years he served as consultant to the National Bureau of Standards Radio Laboratory, working on the development of radio receiver performance, measuring methods, and equipment.

In 1924 he was made chief engineer, and next year was efected vice-president of the Federal Telephone and Telegraph Company, and directed the development of radio receivers and broadcast transmitters at Buffalo, N. Y., for that company.

Since 1929 he has been consultant on special problems in broadcast station organization and operations; aircraft and other mobile general and directional radio equipment; development of ultrahigh-frequency broadcasting transmitting and receiving equipment, and for radio control systems.

He has been chosen to serve as vicechairman of the new ASA committee.

We all believe that this work will benefit the set owner, the radio designer and manufacturer, the radio-equipped automobile manufacturer, and, to a greater degree, everyone interested in television.

### A.S.T.M. Issues 35 Standards for Electrical Insulating Materials

The 1935 edition of A.S.T.M. Standards on Electrical Insulating Materials published by the American Society for Testing Materials presents 25 methods of test and ten specifications which are in widespread use for testing and evaluating electrical insulating materials, and includes the current report of Committee D-9.

The method of testing shellac given in this edition has not been published before.

During 1935, revisions were made in a number of the test methods, including: varnishes, solid filling and treating compounds, molding powders, sheet and plate materials, laminated tubes and round rods, natural mica, and flexible varnished tubing.

Specifications which have been revised cover the following materials: friction tape, rubber insulating tape, and flexible varnished tubing. The current report of Committee D-9 outlines the extensive research and standardization work under way, and gives a modified Baader saponification test for insulating oils and proposed requirements for rubber insulating blankets.

The following materials are also covered by specifications or tests in the book: rubber gloves, rubber matting, electrical cotton yarns, silk and cotton tapes, pasted mica, and slate; also black bias-cut varnished tape, asbestos yarns, tape and roving; untreated paper; electrical porcelain; insulating oils. Other tests cover procedures for thickness testing, impact, thermal conductivity, resistivity.

Copies, bound in heavy paper cover, can be obtained from the American Society for Testing Materials, 260 S. Broad Street, Philadelphia, at \$1.75 per copy. Special prices are in effect on orders for ten or more copies.

## **Chevrolet Forge Plant Wins Safety Trophy**

Chevrolet's recent six months' accident campaign resulted in a 77 per cent reduction in accidents in the forge plant, according to company officials. A trophy was presented to William J. Scott, forge plant manager, at a recent dinner to celebrate the accomplishment.

Attending the affair were C. E. Wilson, GM vice-president; M. E. Coyle, Chevrolet president and general manager, and C. E. Wetherald, gen-

eral manufacturing manager.

#### Czechoslovak Electrical Body Tests Products for Quality

Quality marking of electrical goods is one of the important phases of the standardization program being carried out by the Czechoslovak Electrotechnical Association. The Association centralizes the standardization work of the Czechoslovak electrical industry and looks after the scientific, technical, and economic aspects of the industry.

If electrical products tested in the Association's

Laboratories are found satisfactory, they are given a special quality mark. The testing is done on each product several times during the year. Samples are taken at random for the tests in order to see that the quality is being maintained. By the end of last year 2,226 products had received the approval mark.

The Czechoslovak Electrotechnical Association is affiliated with all the leading international electrotechnical organizations; such as, the World Power Conference, the International Electrotechnical Commission, and the International Commission.

sion on Illumination.

#### A.S.T.M. Adopts New Test For Voids in Coarse Aggregates

A revision of the Standard Method of Test for Determination of Voids in Fine Aggregate for Concrete (A19-1923; A.S.T.M. C 30-22) has been approved for publication as tentative by the American Society for Testing Materials Committee C-9 on Concrete and Concrete Aggregates.

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The revision is in the form of a separate tentative method of test, Tentative Method of Test for Determination of Voids in Coarse Aggregates (C 30-35 T). When adopted, it will be added to the present Standard Method C 30-22.

# **Insurance Policy Guarantees Color**

Consumer standards, set up for color-fastness of "Everfast" dyed and printed fabrics made by N. Erlanger, Blumgart & Company, Inc., are backed by an unconditional guarantee in an insurance policy.

A series of rigid tests are carried out after the material is either dyed or printed to determine whether the color would remain unchanged under actual usage. The tests are said to be more severe than any fabric would be subjected to during its useful life as a finished garment.

"During the depression years, when there was a tendency toward lowering standards, the ideal implied in the 'Everfast' name was adhered to more closely than before," according to The du Pont Magazine, September.

The five tests for samples of "Everfast" dyed fabrics, in brief, follow:

(a). Kier-boiling process with strong laundry and cleansing agents under powerful steam pressure for a prolonged period.

(b). Severe laundry test, with repeated boilings in strong soap and laundry powder solutions, washed and dried, to simulate the many launderings in actual use.

(c). Submitted to chlorine solution, then soaped, washed and dried, to determine whether the color will stand up under the bleaching and whitening agents used in the homes and laundries.

(d). Hot-iron test, to determine whether the fabric



Courtesy The du Pont Magazine

will stand the many damp ironings while in use. Fabric is wet out, placed on a white cloth, and pressed at high temperature. If color shows on white cloth, the fabric fails the test.

(e). Fadeometer test, approximating three months of exposure to strong sunlight.

(f). Crocking or rubbing test, to determine whether color can be rubbed off onto white cloth.

#### Bureau of Standards Tests High-Early-Strength Cement

A research program to secure data on which to base a Federal Specification for high-early-strength cement was undertaken recently by the National Bureau of Standards and is reported in the October number of the Journal of Research as Research Paper 839. Samples of 28 commercial high-early-strength portland cements were analyzed chemically and tested for strength, time to set, and soundness when incorporated into mortars of both standard and graded sands.

The cements represented a wide spread in compound composition and physical properties. Two cements were found to contain sulphuric anhydride exceeding the 2.5 per cent limit of the tentative specification C 74-30 T of the A.S.T.M. Nine cements failed to meet the tensile strength requirement in this specification of 275 pounds per square inch at one day and 10 failed to meet that

of 375 pounds per square inch at three days.

The requirements for a high early strength cement specification are discussed in this paper and recommendations made for tests to be incorporated into such a specification.

#### Revises Recommendation For Photographic Paper

A revision of Simplified Practice Recommendation R98-29, Photographic Paper, eliminating one size and adding five sizes to the present recommendation, has been mailed to all interests for consideration and approval by the Division of Simplified Practice, National Bureau of Standards.

Mimeographed copies of the proposed revision may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

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#### Standard Prevents Confusion In Scientific Abbreviations

Because of a wide demand for copies of the American Tentative Standard Abbreviations for Scientific and Engineering Terms, arrangements have now been completed for a reprint edition. Orders for copies of the standard, which will be ready soon, are now being taken by the American Standards Association at 40 cents per copy.

The abbreviations included in the pamphlet are for those terms most commonly used in scientific and engineering work. Confusing variations in the use of abbreviations by different writers and in different publications prompted this attempt to develop a common usage understandable to all. Before the abbreviations were approved, drafts were widely distributed, and the standard was re-drafted several times in the light of comments and criticisms received.

The standard abbreviations have been widely adopted since their approval in 1932 by scientific publications and trade journals, as well as for technical use.

The Sectional Committee on Scientific and Engineering Symbols and Abbreviations (Z10), which recommended the standard abbreviations to the American Standards Association for approval, carried on its work under the leadership of the American Association for the Advancement of Science, the American Institute of Electrical Engineers, the American Society of Civil Engineers, the Society for the Promotion of Engineering Education, and the American Society of Mechanical Engineers.

#### A.S.T.M. Starts Work On Gaseous Fuels

A. C. Fieldner, chief engineer, Experiment Stations Division, U. S. Bureau of Mines, was elected chairman of a standing committee organized by the American Society for Testing Materials to undertake standardization and research on gaseous fuels. R. M. Conner. director. American Gas As-

sociation Testing Laboratory, was chosen secretary, and R. B. Harper, vice-president, The Peoples Gas Light & Coke Company, was elected vice-chairman.

Dr. G. G. Brown, University of Michigan, J. V. Freeman, U. S. Steel Corporation, and G. G. Oberfell, Phillips Petroleum Company, with the three officers, make up the Advisory Committee for the standing committee.

The work of the committee, as outlined at present, will include collection of samples, measurement of samples, calorific value, specific gravity or density. Subcommittees are now being organized by the standing committee to carry on the work on these subjects.

Members of the committee are:

American Society of Mechanical Engineers (Power Test Codes Committee on Fuels, E. X. Schmidt, Cutler-Hammer, Inc.)

Cutler-Hammer, Inc.)
C. E. Bales, Ironton Fire Brick Co.
Bethlehem Steel Company, E. F. Kenney
Brooklyn Union Gas Company, J. F. Anthes
G. G. Brown, University of Michigan

G. G. Brown, University of Michigan R. M. Conner, American Gas Assn. Testing Laboratories Id III Ir Io K La M

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Corning Glass Works, W. W. Oakley Earle Derby, Standard Gasoline Co. R. L. Dodge, duPont Ammonia Corp. H. L. Doherty & Co., H. D. Hancock A. C. Fieldner, U. S. Bureau of Mines J. V. Freeman, U. S. Steel Corp.

W. H. Fulweiler, United Gas Improvement Co. A. W. Gauger, Mineral Industries Research, Pennsylvania State College

S. H. Graf, Oregon State Agricultural College
R. B. Harper, People's Gas Light & Coke Co.
G. G. Oberfell, Phillips Petroleum Co.
D. A. Russell, Youngstown Sheet and Tube Co.
H. S. Smith, Carbolide & Carbon Chemicals Corp.

H. S. Smith, Carbide & Carbon Chemicals Corp. S. S. Tomkins, Consolidated Gas Co. of New York Carl D. Ulmer, Koppers Construction Co. National Bureau of Standards, E. R. Weaver

J. C. Witt, Universal Atlas Cement Co.

#### Reaffirm Simplified Practice Recommendations

Simplified Practice Recommendations on the following subjects have been reaffirmed without change by the standing committees of the industries, according to an announcement from the Division of Simplified Practice, National Bureau of Standards:

Metal lath R3-28 Classification of Iron and Steel Scrap R58-28 Eaves trough, conductor pipe, conductor elbows and fittings R29-32 Wheelbarrows R105-32 Composition Blackboard R75-29

Copies of these Simplified Practice Recommendations may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at five cents each.

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### Lack of Uniformity Shown In Emergency Road Signals

An example of the lack of uniformity in many phases of safety is seen in rules and regulations enforced in several states covering warnings for disabled vehicles stopped on highways. Thirtyong states have laws requiring lanterns, fuses, or other emergency lighting devices. No two of these regulations are similar, and many are quite different from the rules of neighboring states.

The requirements, by states, are shown in the table below:

		44. *	PLACEMENT		
				Roadside :	
State	Burning Time	Туре	Front	Vehicle	Back
Calif	Sunset to Sunrise	Oil Burning Torches			
		Lanterns—Reflectors	200'	No	200'
Colo	12 Hours	Oil Burning Torches	200'	Yes	200
Conn	1 Hour after Sunset	Capable of burning under			
	1 Hour before Sunrise	all weather conditions	150′	Yes	150'
Del	8 Hours or more	Oil Burning-Electric			
		or Reflectors	100'	Yes	100
Ga		Red Lantern		Yes	
Idaho					
III	12 Hours	Oil Burning-Lanterns	75'	Yes	75'
Ind	Sunset to Sunrise	Oil Burning	300'		300'
Iowa	8 Hours or more	Oil Burning	75	Yes	75'
Kans.	Open Flame	Oil Burning	500'		500
La	•	White to front, Red to rear			
Md		Red Fussees			
Mich	12 Hours or more	Open Flame	75	Yes	50'
Minn.		Open Flame	50'		50'
Mo	Entire Period	•	200'		200'
Mont	Sunset to Sunrise	Open Flame	Yes		Yes
Neb	12 Hours	Open Flame	200'	Yes	200'
N. H			100′		100'
N. Mex	Sunset to Sunrise	Open Flame		Yes	
N. Y	4 Hours		Yes		Yes
No. Car		White to front, Red to rear			
No. Dak		White to front, Red to rear			
Ohio	8 Hours	Open Flame	100 step	08	100 steps
Penn	New-Effective Jan. 1, 1935				
R. I		2 Auxiliary Lights			
So. Dak	Sunset to Sunrise	Portable	100′		100'
Tenn	12 Hours or more	Oil Burning	200'	Yes	200' "
Texas	Sunset to Sunrise	Open Flame	150′	Yes	150'
Utah	12 Hours or more	Open Flame	100′	Yes	100′
Wis	During Entire Disability		125'		125'
Wyo	12 Hours or more		100'	Yes	100'

No provisions covering warnings are required by the states of Alabama, Arizona, Arkansas, Florida, Kentucky, Louisiana, Maine, Massachusetts, Mississippi, Nevada, New Jersey, Oklahoma, South Carolina, Vermont, Vir-

ginia, Washington and West Virginia.

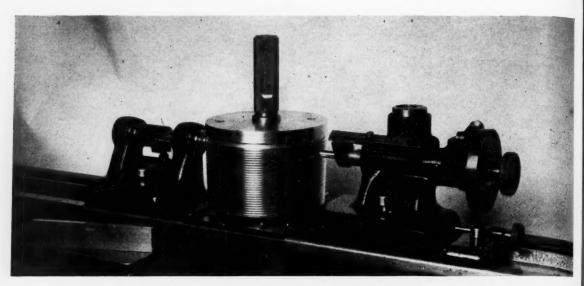
(The above digest furnished through the courtesy of the K-D Lamp Company, Cincinnati.)

#### Revision Specifies Persulphate To Find Manganese in Bronze

A revised standard for methods of chemical analysis of manganese bronze has been approved by the American Standards Association. The revision substitutes a procedure for determining manganese by the persulphate method for methods previously recommended. This modification of

laboratory procedure was developed by Committee B-2 of the American Society for Testing Materials on Non-Ferrous Metals and Alloys.

Copies of the revised standard, Methods of Chemical Analysis of Manganese Bronze (K3-1935; A.S.T.M. B 27-35), may be obtained from the American Society for Testing Materials, 260 South Broad Street, Philadelphia, or from the American Standards Association, at 25 cents each.



Measurement of Pitch Diameter in a Universal Measuring Machine

## National Bureau of Standards Certifies Many Types of Master Gages Each Year

ROM the time that the Bureau of Standards was organized in 1901 the Division of Weights and Measures each year has tested and standardized precision length standards and measuring instruments for the several branches of the Federal Government and for industrial concerns. This work gradually increased, and by 1916 the testing of contact length standards, micrometers, and screw thread gages, was sufficient to keep two men constantly employed.

Because accurate gages are a vital necessity in the manufacture of munitions this work was expanded to a large degree in 1917 in order to provide for the many demands of the War and Navy Departments and of manufacturers having contracts for war material. This lead to the organization of a new section within the Division of Weights and Measures which is now well known throughout mechanical industry as the Gage Section of the National Bureau of Standards. Started as a war activity, this work has become an important peace-time service to industry.

The first appropriation for gage standardization was granted by Congress on June 15, 1917, and subsequently appropriations have been made annually for this work.

Industry Finds Service Valuable, as 3,000 Gages Are Checked Annually

In the year ending June 30, 1918, there were tested and certified or rejected 27,865 gages, of which 85 per cent were for the United States Army. Of the total, 60 per cent were classed as plain gages (plain plug, ring, and snap gages), 20 per cent as profile gages (complicated templets, chamber gages, and fixture gages), and about 20 per cent as screw thread gages. In the next year the number of gages tested increased to 40,630, of which a much larger proportion, 45 per cent, were screw thread gages. Since then the testing of screw thread gages has continued to be a major activity of the Gage Section. To expedite this large volume of testing there were, in addition to the laboratory at headquarters, three branch gage-testing laboratories, which were located in New York, Cleveland, and Bridgeport, Connecticut. These branches were discontinued after the end of the War.

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However, as stated in the Annual Report of the Bureau for the year ending June, 30, 1920:

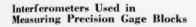
"The need for gages and gage inspection did not cease with the ending of the war. Wherever interchangeable manufacture is carried on limit gages are needed, and the adequacy of the gaging system employed may be taken as a fair measure of the success attained in interchangeable manufacture. One of the principal reasons why the United States leads the world in the manufacture of automobile products is that manufacturers in this country have more nearly grasped the importance of gaging in interchangeable manufacture. It has been said that the wonderful production records made by our manufacturers during the war were due in a large

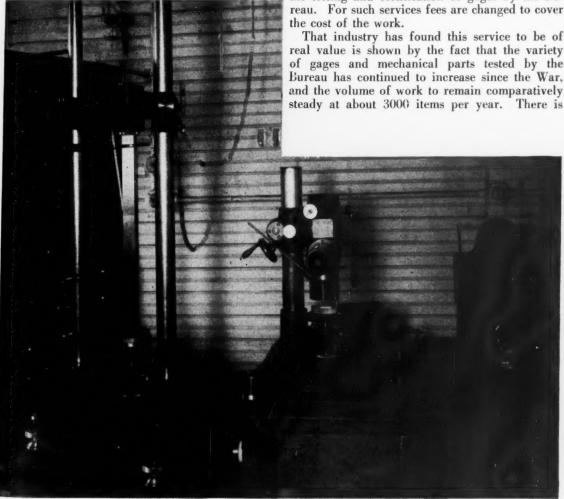
measure to the fact that the United States Government insisted upon the proper use of gages. The use of gages is no less important in peace than in war and should be encouraged and fostered in every possible way." Representative examples of the importance of

Representative examples of the importance of limit gages in interchangeable manufacture are these: The production and inspection of the Springfield Army rifle requires the use of 1263 gages; a machine gun about 2200 gages; and one make of automobile about 15000 gages. The Ordnance Department of the War Department has under its charge in the various Arsenals more than 500,000 gages, the replacement value of which is about \$30,000,000.

#### Same Standards Are Essential

It is obvious that the most effective use of gages by industry can be secured only if all manufacturers and users of gages have access to the same ultimate standards. This object is promoted by the testing and certification of gages by the Bureau. For such services fees are changed to cover the cost of the work.





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an increased tendency on the part of manufacturers to require careful inspection of certain gages and tools which formerly were accepted

without any question as to accuracy.

An early example of this tendency was the requirement for increased accuracy in gear hobs. Manufacturers of gears by the hobbing process began to feel the effects of keen competition with gears made by other processes, especially ground gears, and in attempting to improve the quality of their product they were inclined to require a

rigid inspection of the hobs used.

There was also a tendency to reduce the tolerances on gages used to inspect work, which in turn increased the difficulty of determining whether a particular gage was within the tolerance specified. Accordingly, one of the first steps taken when permanent quarters were made available to the Gage Section was to install an insulated and thermostatically controlled constant temperature room to be used exclusively in gage testing. There also began a progressive movement in the accuracy of the equipment used for measurement of gages.

#### Many Types of Master Gages Used

Foremost among the master gages which the Bureau has tested and certified are precision gage blocks used by gage, machine tool, small tool, automobile, and many other machinery manufacturers as dimensional standards. This work is shared by the Gage and Interferometry Sections. Sets of gage blocks are maintained by the Bureau as standards, with which sets submitted for test are compared by light interference methods. These standards are checked periodically by measuring their lengths directly in terms of wavelengths of monochromatic light. For highest precision certification, a few gage blocks submitted for test are also so measured.

For more than ten years the Bureau has cooperated with the American Petroleum Institute to establish and maintain standards for oil-well casing threads and other screw threads for oilfield equipment. The Section measures and certifies master plug and ring thread gages made to represent the standards adopted. The Bureau is custodian of the sets of grand master gages. Three sets of regional masters, which are used to check inspection gages, are deposited at convenient stations. These are rechecked periodically by the Bureau. Thus uniformity and complete interchangeability of such threads is secured throughout the country.

Wires for measuring pitch diameters of screw thread gages are frequently measured and certified. Occasionally master lead screws for machine tools are thoroughly investigated as to errors in the screw. In recent years the Bureau has certified several sets of master gages for interchangeable ground glass stopcocks, flask stoppers, and reagent bottle stoppers made in accordance with Commercial Standard CS 21-34.

One of the functions of the Gage Section is to act as referee in disputes between manufacturers and purchasers of gages as to the acceptability of gages in question. The section is also called upon to an increasing extent to determine dimensions of parts of scientific apparatus such as penetration needles for determining consistency of bituminous materials, and polariscope tubes, of which hundreds of items have been tested in one year.

#### Cooperates with Standardizing Bodies

The certification of gages constitutes only a part of the work done by the Gage Section. As indicated above, much work has been done in the development and improvement of test methods and apparatus. The Section has been of considerable assistance to standardizing bodies such as the National Screw Thread Commission, various sectional committees organized under the procedure of the American Standards Association, and the Division of Trade Standards of the Bureau. It has conducted or assisted in a number of technical investigations which have provided data necessary for various standardization projects dealing with mechanical parts, screw threads, and threaded product and gages, and for preparation of Federal or Departmental purchase specifications for such items.

#### Contributions to ASA Standards

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One of the American Standards which the Section has assisted in formulating is ASA B1.1-1935, Screw Threads. A project of the sectional committee which contributed toward this standard was the Screw Thread Survey, for which the threads of about 7800 sample screws, bolts, and nuts were measured, gaged, and classified by the Gage Section. A second American Standard which the Section has assisted in formulating and is now helping to revise is ASA B4a-1925, Tolerances, Allowances, and Gages for Metal Fits. A third is ASA B33.1-1935, Hose Coupling Screw Threads, and a fourth is ASA B48.1-1933, American Standard Practice for Inch-Millimeter Conversion for Industrial Use. Representatives of the Bureau and the Section have served on the sectional committees responsible for these standards. The Section is represented by H. W. Bearce and D. R. Miller on Sectional Committee B4 on Allowances and Tolerances for Cylindrical Parts and Limit Gages, and by Mr. Miller on the sectional committe which is revising B2-1919, Pipe Thread.

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Other American Standards which the Section has had some part in developing are:

B5e-1930—Taps; cut and ground threads. B18c-1930—Slotted head proportions, machine screws, cap screws, and wood screws. B18.2-1933—Wrench-head bolts and nuts and wrench openings.

B26-1925—Fire-hose-coupling screw thread.

#### Commercial Standards

Among Commercial Standards promulgated by the Bureau, for which the Section has rendered assistance, are:

CS8-33—Gage blanks (Approved as American Standard B47-1933).

CS21-34—Interchangeable ground · glass joints, stopcocks, and stoppers.

CS17-32—Diamond core drill fittings.

CS24-30—American National standard screw threads.

CS25-30—American National special screw threads.

#### British Eliminate Needless Grinding Wheel Styles, Sizes

Manufacture of grinding wheels in Great Britain will be simplified and made less expensive through elimination of unnecessary dimensions and methods of attachment, if the recommendations of the British Standards Institution's Specification 620-1935 are followed by the industry. The standard was developed by a committee of the British Standards Institution with the cooperation of both manufacturers and users of grinding wheels and machines.

"Only those shapes which are in general usehave been considered, and an attempt has been made to provide a range of wheels which will adequately cover the general demands of the engineering industry while excluding special and unnecessary shapes and sizes," says *Machinery*, London, in commenting on the new British Stand-

"The correct mounting of wheels is obviously a matter of great importance, and tables of dimensions for standard washer plates have been included, together with details as to quality of material and methods of fastening. In this connection the recommended practice of making the diameter of the safety plate not less than half the diameter of the wheel has been adhered to.

"Wheels are produced in a bewildering variety of sizes, shapes, and qualities which greatly complicates the processes of manufacture. As regards the characteristics of the wheel, apart from its size and shape, it will be apparent that, with a num-

#### Consumer Standards Here To Stay, Says Freedman

Merchandise standards have come to stay, Ephraim Freedman, director of the Bureau of Standards of R. H. Macy & Company, told the Boston conference on distribution recently. Describing standards as yardsticks for measuring value in terms of quantity, quality, performance, and durability, he said that they simplify stocks, reduce waste, and make prices lower. Merchandise standards should be consistent at all times with the consumer's best interests, Mr. Freedman said.

ber of different abrasives and bonding agents, an almost unlimited choice of grain size, and the possibility, in certain cases, of controlling the porosity, the properties can be varied to meet any possible requirements.

"While users have sometimes complained of the number of different qualities of grinding wheels required in a factory, they have made no attempt to reduce their demands for special sizes and shapes. It is this side of the problem which has now been tackled by a committee representative of grinding wheel and machine makers and users."

#### Fruit Juices Vary in Vitamin Content, Lack Standard for Determining Quality

Some method of standardization of canned vegetables and vegetable juices, especially those used for infant feeding, is desirable, according to E. W. McHenry, writing in *Canadian Public Health Journal*, 1935 (v.26,124-7). A minimal vitamin content should be fixed by law for any food advertised as containing vitamins, and this value should be printed on the label, he says.

In advertising, Mr. McHenry points out, various foods are said to contain certain of the vitamins without any determination of these vitamins having been made. The vitamin C content of various brands of canned tomato was determined by titration and was found to vary from 1.7 to 5.6 International units per cc of juice, while different cans of the same brand varied in ascorbic acid content from 5.4 to 11.1 mgm per cent. The ascorbic acid content of lemons varied from 42 to 65 mgm per cent, of fresh tomatoes from 18 to 36 mgm per cent.

#### A. G. A. Laboratories Grant Seal of Approval on Tests Agreed Upon by National Committee

# Put Your Standard

HOWEVER authoritative, comprehensive, or called-for a standard may be, it is valueless until applied. A sales program is without merit until it is carried out; an invention is useless until it is manufactured and marketed. An industrial, commercial, or consumer standard is no more than a commendable exercise on paper until industry seizes upon it and actually applies it to the benefit of the public.

If, on the other hand, standards are universally accepted, generally applied by producers of goods, and understood by distributors and consumers, they may act to the decided betterment of all interests, even to the extent of sizably stimulating sales and good will. In the current period of general industrial recovery, therefore, it will be to the definite advantage of far-sighted industrial leaders to carefully investigate the standardization programs afoot within their domains and ask themselves, not so much "How may our consumer standard be improved?" but "Are our standards being applied properly, universally, and effectively?"

#### Standards Program Ten Years Old

To illustrate the contentions of the above two paragraphs, numerous examples may be cited. Among them is the experience of the American gas industry, which for ten years has been profitably executing a remarkable program of unified and cooperative standardization through its national trade group, the American Gas Association. In the words of P. G. Agnew, secretary of the American Standards Association, "The work on gas appliances constitutes the most important job in the standardization of customer goods which has yet been done under the auspices of the American Standards Association, and it seems to me to go a long way toward proving that such cooperative efforts are a paying proposition for producers, consumers, and utilities alike.'

by Harry W. Smith, Jr.

A.G.A. Testing Laboratories

The American Gas Association effects its standardization work through its Laboratories, the main Laboratory being in Cleveland, Ohio, and the Pacific Coast Branch in Los Angeles, California. These A.G.A. Testing Laboratories were established chiefly to develop and apply an extensive impartial standardization program in the public's interest. Their achievements have been notable. Last month they celebrated their tenth anniversary—a decade of progress. It should be appropriate as well as helpful, therefore, to review the surprisingly effective methods employed by the Testing Laboratories in making standards work to the betterment of a great industry and its customers.

Through its Approval Requirements Committee (Sectional Committee, Project Z21, of the American Standards Association) and some 30 subcommittees, the American Gas Association develops requirements for the construction and performance of all types of gas-burning appliances and appliance accessories. These requirements specify practical, scientific, and reproducible methods of test that disclose the design and performance characteristics of any appliance or accessory, and state exactly what results must be obtained in order that tested products be proven acceptably efficient, convenient, safe, durable, serviceable, and flexible from all points of view. Regularly, these requirements are revised to keep pace with modern developments and to cover every large and small item of construction or performance that might influence the desirability of the proATION

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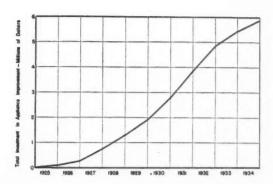
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ducts from either the manufacturer's, the utility's,

or the user's standpoint. In order that such standards be absolutely unimpeachable, the membership of the Approval Requirements Committee and its subcommittees includes 284 national authorities representing not only the leading gas utility and equipment manufacturer interests in the United States and Canada, but also such important external bodies as the National Bureau of Standards, U. S. Bureau of Mines, U. S. Public Health Service, U. S. Bureau of Home Economics, American Home Economics Association, Master Plumbers Association, National Safety Council, National Association of Heating and Piping Contractors, American Institute of Architects, and Associated Factory Mutual Fire Insurance Companies. On the roster of its 30 subcommittees, each concerned with a specific class of appliance or accessory, are equal numbers of engineers representing manufacturing and utility interests, which men are among the highest technical authorities on the design and use of the particular type of equipment involved. Further, every standard developed is formulated only after careful and exhaustive technical research by the Testing Laboratories. During such research all known varieties of the class of goods concerned are investigated. Finally, all proposed requirements are submitted to the industry and to all other interested factions for an extended period of criticism and comment before official action is taken on their adoption.

#### 27 Standards Widely Used

At the present time comprehensive, universally accepted standards exist, covering: gas ranges, all types of gas water heaters, basement furnaces, boilers, floor furnaces, radiant heaters, circulators, open flame room heaters, unit heaters, gassteam radiators, hotel and restaurant ranges, industrial gas boilers, gas refrigerators, clothesdryers, gas-heated ironers, incinerators, private



#### **Standards Spur Improvements**

As a result of the Testing Laboratory program of the American Gas Association, and the approval as American Standards of Requirements for Gas Burning Equipment under the leadership of the A. G. A., six million dollars have been invested by gas equipment manufacturers in improving their products. This estimated expenditure, by years, is shown above.

garage heaters, hot plates and laundry stoves, hair dryers, flexible gas tubing, thermostats, pressure regulators, burner valves, draft hoods, conversion burners, pressure and temperature relief and automatic gas shut-off valves for water heaters, semi-rigid gas appliance tubing and fittings, diaphragm and electric gas-control valves, and thermostatic pilots. Two additional sets of standards cover the proper installation of house piping and appliances and of conversion burners. Of the 27 sets now being widely applied by the gas industry, 23 are already approved as American Standards. There is no doubt that the approval, listing, and installation requirements enforced by the American Gas Association Testing Laboratories constitute "the finest and most complete set of workable consumer standards that enjoy general application in the public's interest today.

So much for the standards themselves. Much more could be said about them, but from these few paragraphs the reasons for their universal acceptance should be evident. However, as originally stated, even this imposing file of consumer standards would be meaningless were it not for the fact that they are applied throughout the entire gas industry, understood by the public, and enforced by an altruistic national trade association. The A.G.A. Testing Laboratories' standards are important, not so much as a result of the fact that they are comprehensive and possess inherent

#### 23 Gas Appliance Standards Are Now American Standards

Twenty-three of the 27 standards being used by the American Gas Association in testing gas-burning appliances have been approved by the American Standards Association. The complete list of these approved American Standards is as follows.

Approval Requirements for Gas Ranges		
(Z21.1-1933)	40	cents
Approval Requirements for Flexible Gas	0.0	
Tubing (Z21,2-1932)	31	cents
Restaurant Ranges (Z21.3-1932)	40	cents
Approval Requirements for Private Gar-		COLLEG
age Heaters (Z21.4-1932)	40	cents
Approval Requirements for Clothes	4.0	
Dryers (Z21.5-1932)	40	cents
(Z21.6·1932)	40	cents
Approval Requirements for Gas-Heated		
Ironers (Z21.7-1932)	40	cents
Installation Requirements for Conversion Burners in House Heating and		
Water Heating Appliances (Z21.8-1933)	40	cents
Approval Requirements for Hot Plates	10	comes
and Laundry Stoves (Z21.9-1933)	40	cents
Approval Requirements for Gas Water	10	
Heaters (Z21.10-1935)	40	cents
ers (Z21.11-1933)	40	cents
Listing Requirements for Draft Hoods		
(Z21.12-1933)	30	cents
Requirements for Central Heating Gas Appliances (Z21.13-1934)	40	cents
Requirements for Industrial Gas Boilers	10	COME
(Z21.14-1934) Listing Requirements for Gas Burner	40	cents
Valves (Z21.15-1934)	20	cents
Requirements for Gas Unit Heaters	30	cents
(Z21.16-1934)	40	cents
(Z21.16-1934)		
ers (Z21.17-1934)	40	cents
ance Pressure Regulators (Z21.18-1934)	30	cents
Requirements for Automatic Devices De-	00	COMEO
signed to Prevent Escape of Unburned		
Gas (Z21.20-1935)	30	cents
Control Valves (Z21,21-1935)	30	cents
Requirements for Relief and Automatic	00	COMES
Gas Shut-Off Valves for Use on Water		
Heating Systems (Z21.22-1935)	40	cents
Requirements for Water Heater, Gas Range and Space Heater Thermostats		
(Z21.23-1935)	40	cents
Requirements for Semi-Rigid Gas Appli-	_	
ance Tubing and Fittings (Z21.24-1935)	In	press

Copies of any of these standards may be obtained from the American Standards Association or from the American Gas Association Testing Laboratories, Cleveland, Ohio. points of excellence, as a result of the manner in which they are applied.

Practically every important gas appliance manufacturer in the United States and Canada regularly submits each new production model of his products to the Testing Laboratories for approval on the basis of thorough test before those products are merchandised. In fact, this he must do if his goods are to be endorsed by the American Gas Association and are to bear the Labora-

tory Seal of Approval.

After being submitted to the Laboratories a gas appliance or appliance accessory is subjected to tests by expert engineers in order to ascertain its compliance with the established requirements or standards in effect at the time. Every point of its design and every characteristic of its performance is considered. As an illustration it may be noted that a gas range, to be approved, must meet 529 separate specifications or requirements. Not only are efficiency and safety factors investigated from all angles, but minimum consumer requirements for convenience, durability, strength, flexibility, and serviceability must be met. The Laboratories truly act as a "clinic" for gas equipment. When an appliance or accessory has been taken through the paces and found acceptable there is no doubt concerning its worthiness and usability. Furthermore, this service is offered to appliance manufacturers on an actual cost basis.

#### **Annual Inspection**

The Laboratories' vigilance does not cease with test, however. An elaborate system of annual inspection of certified goods on the manufacturer's premises is maintained. Regularly, representatives from the Cleveland and Los Angeles Laboratories enter the factories of all producers of approved or listed products and thoroughly check these products on assembly lines or shipping room floors to see that they are being fabricated exactly as was the unit originally tested at the Laboratories. It is also the function of these inspectors to extend certification from already endorsed products to others sufficiently similar in design and construction, and to contact utility executives, dealers, and others with a view to enlarging the scope and influence of the certification program. A.G.A. Laboratory standards never die in files. They are kept alive and significant to the entire industry.

As standards are improved or extended through committee activity, their modernization is reflected throughout the industry. Laboratory certification is, to be sure, extended for a reasonable time by yearly inspections without further investigation; but at the end of a five-year interval it is required that all certified goods be resubmitted to the Laboratories for partial or complete retest CATION

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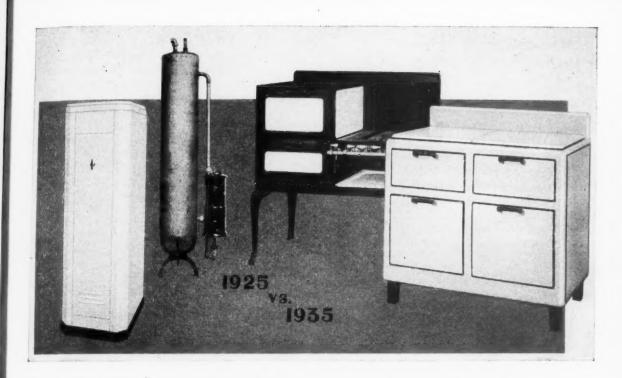
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in accordance with the latest effective set of applicable standards. As the arts of appliance and accessory manufacture advance, so do the standards upon the basis of which Association endorsement is granted.

#### Reasons for Support

To understand why the gas appliance manufacturers of America support wholeheartedly the Laboratories' program, observe the following facts:

1. Ninety-three per cent of all the gas appliances, of the classes for which standards exist, sold in the United States and Canada today are approved by the Laboratories.

2. The program is sponsored by a national trade association, unbiased by specific commercial interest and dedicated "to the best interests of the public."

3. Gas companies, dealers, trade groups, plumbers, and stores have agreed in legion to sell or install only approved appliances.

4. Many federal and state departments purchase only A.G.A. Laboratories approved gas equipment.

5. In the neighborhood of 40 municipalities have enacted legislation requiring A.G.A. certification or its equivalent.

6. Colleges, lecturers, home service organizations, publications, etc. have pointed out to the public the value of the Laboratory Approval Seal as a buying guide.

Gas Water Heaters and Ranges of 1925 and 1935 Attest to the Improvement in Appliances Brought About by Applied Standards

7. The Association regularly and continually distributes to a key subscription list of over 1,500 a Directory of Approved Gas Appliances and Listed Accessories.

It is obviously highly advantageous for the manufacturer of gas-consuming equipment to secure A.G.A. certification of his products. As a result, the Testing Laboratories have, in the ten short years of their existence, approved as complying with published American Standards 26,000 different models of 28 different general varieties of gas-burning equipment, representing an annual sale of more than 1,580,000 units. It is in the consequences of this certification work that the real value of the Laboratories' appliance and accessory standards lies.

Of the 93 per cent of appliances sold yearly which are Laboratory approved, 99.8 per cent, or practically all, have been required to be improved in one or a number of particulars before certification could be granted. In other words, because of the manner in which American Gas Association Standards are applied, the gas consumer of today receives much better types of equipment for his money than was formerly the case. In all, it is estimated that some \$6,000,000

#### Standard Screw Threads Reduce Navy Expense

Standardization of screw thread products has resulted in the facilitation of maintenance and construction work, and simplification of stock keeping, with attendant reduction in expense.—
W. G. DuBose, Assistant Chief, Bureau of Construction and Repair, Navy Department, in commenting upon the new American Standard for Screw Threads.

has been invested by the American gas appliance industry in improving or developing products from the customer's standpoint as a direct consequence of the A.G.A. Testing Laboratories' program. A cursory inspection of the gas appliances of 1925 and 1935 will attest to the improvement in products that has resulted from this expenditure.

Such is the machinery employed by the American Gas Association in turning to benefit a program of developing consumer standards. If progress has been engendered, it is as much an outcome of the manner in which the standards have been applied as of the quality of the standards themselves.

#### Canada and U. S. Differ On Standard Brick Sizes

One standard size for building brick has been approved by the Canadian Engineering Standards Association, with the expectation that approval of the standard size will result in elimination of the excessive variety of brick sizes now on the market.

The dimensions approved in the standard size of Canadian brick are slightly larger than the corresponding dimensions recommended as standard in the United States. The Canadian dimensions are: Length  $8\frac{3}{5}$  in., thickness  $2\frac{3}{5}$  in., width 4 in. Although the question of tolerances is discussed in the standard, no tolerances are included.

The dimensions of the standard brick in the United States are, respectively,  $8 \text{ in. } x \, 2\frac{1}{4} \text{ in. } x \, 3\frac{3}{4}$  in. for common and rough face brick, and  $8 \text{ in. } x \, 2\frac{1}{4} \, x \, 3\frac{7}{8}$  in. for smooth face brick. These sizes are recommended by the American Society for Testing Materials and are included in Simplified Practice Recommendation 7, issued by the Division of Simplified Practice, National Bureau of Standards. Permissible variation in these dimensions are  $\frac{1}{4}$  1/16 in. in depth,  $\frac{1}{4}$  in. in width, and  $\frac{1}{4}$  in. in length.

The Canadian standard was developed following a request from the Royal Architectural Institute of Canada that the Canadian Engineering Standards Association undertake the preparation of standards covering building materials in general. This work commenced January, 1932, supplementing previous consideration by C.E.S.A., which in 1927 led to recommendations for adoption of the dimensions of brick that are considered as standard in the United States. The adoption of the new dimensions in Canada resulted from the general belief that the larger size offers certain advantages.

The specifications have been published by the Canadian Engineering Standards Association (C.E.S.A.: A36-1935). The price is 25 cents.

## **Proprietary Druggists To Improve Standards**

To improve standards and practices and to intensify scientific research in the proprietary drug field, plans were formulated at a meeting of the executive and advisory committees of the Proprietary Association, recently in New York City.

tary Association, recently in New York City.
Dr. George F. Reddish, St. Louis, chairman of the Scientific Section, said that the committees would work to "combat pseudo-scientific statements disseminated by book-writing jingoists about the value and effects of packaged drugs."

Members of the executive committe of the section, in addition to Dr. Reddish, are Dr. F. J. Cullen, Washington, D. C., Dr. S. T. Helms, Baltimore, Dr. John Paul Snyder, Norwich, N. Y., and John R. McClelland, New Haven, Conn.

Scientists identified with research activities in the industry who are serving on the advisory committee are Dr. Charles E. Caspari, St. Louis, Dr. Paul W. Spikard, Boston, Dr. George W. Hoover, Washington, D. C., Dr. D. E. Buckingham, Richmond, Henry C. Fuller, Washington, D. C., Dr. Delta E. Combs, Chicago, A. Barol, Philadelphia, K. A. Bartlett, Newark, N. J. and H. A. Seil, Dr. A. A. White, Dr. John H. Wright, Dr. Thomas Lewis, Dr. E. L. Newcomb, of New York City. Dr. Newcomb is executive vice-president of the National Wholesale Druggists' Association.

It is expected that the Advisory Committee will be enlarged.

#### Propose Simplified Schedules for Tinned Steel Ice Cream Can Sizes

A proposal for a simplified schedule of standard stock types and sizes of tinned steel ice cream cans, representing over 90 per cent of the demand, has been mailed to all interests by the Division of Simplified Practice of the National Bureau of Standards for consideration and acceptance.

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### **New Soil Pipe Standard Covers Wide Size Range**

Nomenclature, materials, marking, and inspection, and dimensions and weights are covered in the new American Standard for Cast Iron Soil Pipe and Fittings, approved by the American Standards Association on October 8. The American Society of Mechanical Engineers and the American Society of Sanitary Engineering are the leaders and have assumed the responsibility for the work of the committee which developed this standard under the procedure of the American Standards Association.

To arrive at a series of dimensions and weights for soil pipe and fittings the subcommittee of the sectional committee divided its task into four parts: (a) Soil pipe, sizes 2 in. to 6 in., (b) Soil pipe, sizes 8 in. to 15 in., (c) Soil pipe fittings, sizes 2 in. to 6 in., and (d) Soil pipe fittings, sizes 8 in. to 15 in.

The specifications for cast iron soil pipe and fittings known by the trade name as "Naco" and published in 1915 were used as a starting point, but these specifications covered only sizes 2 in. to 6 in. The subcommittee added specifications for soil pipe in sizes 8 in. to 15 in., in conformity with the standards for the smaller sizes. The committee also took into consideration the necessity of providing for the interchangeability of pipe and fittings made at present by the various manufacturers with that made to the new stand-

Much attention has been given to the simplification of the line of standard fittings. Fittings for sizes 2 in. to 6 in. include 39 separate and distinct items, and the sizes from 8 in. to 15 in. include 19 items. The committee made an effort to reduce the number of fittings to a minimum consistent with the demands of the trade and yet maintain a sufficient variety of fittings to meet the requirements most efficiently. Therefore, the committee eliminated 36 items, or approximately 40 per cent, of all the items that were being manufactured when it began its work. The fittings eliminated are those now obsolete or inconsistent with sanitary practice.

#### Aubeck Named President Of Danish Standards Body

A. K. Aubeck, professor at the Royal Technical College, Copenhagen, was appointed president of the Danish Standardizing Commission by the Ministry of Commerce and Industry of Denmark. Professor Aubeck has taken a great interest in standardization, and for many years has been an active member of the Commission.

#### Soil Pipe Committee Members Represent Wide Interest Range

Representatives of a wide range of scientific, engineering, manufacturing, sanitation, and building interests are members of the Sectional Committee on Standardization of Plumbing Committee (A40) which developed the new American Standard for Cast-Iron Soil Pipe and The American Society of Mechanical Engineers and the American Society of Sanitary Engineering have assumed the technical leadership for the work. Members of the committee are:

William C. Groeniger, American Society of Sanitary Engineering, Chairman

C. B. LePage, American Society of Mechanical Engineers, Acting Secretary

American Society of Mechanical Engineers, John J. Long, Robert H. Mueller, J. W. Wells (alt.), William Rueben Webster, J. F. Row (alt.)

American Society of Sanitary Engineering, J. J. Crotty, Wm. C. Groeniger

American Ceramic Society, Charles S. Maddock American Civic Association, Frederick C. Zobel American Home Economics Association, Prof. C. J. Lynde

American Hospital Association, Dr. John M. Smith American Hotel Association of the United States and Canada, Augustus Nulle, J. F. Carney (alt.)

American Institute of Architects American Marine Standards Commission, Horace

American Water Works Association, Walter S. L. Cleverdon

Cleveland Engineering Society, Willard Luff Copper and Brass Research Association, William G. Schneider

Wanufacturers Standardization Society of the Valve and Fittings Industry, Roy H. Zinkil National Association of Building Owners and Managers, G. W. Martin, Albert H. Morgan

National Association of Master Plumbers of United States, Jere L. Murphy
National Slate Association, W. S. Hays
The Real Estate Board of New York—Management Division, G. W. Martin, Albert H. Morgan (alt.)
Society of Naval Architects and Marine Engineers, Horace H. Thayer

Soil Pipe Association, A. C. Shaver, Thomas H. Powers (alt.)

U. S. Department of Commerce, National Bureau of Standards, I. J. Fairchild

U. S. Navy Department, R. E. Bakenhus
Members-at-Large, W. W. Bowers, F. B. Cooley,
L. A. Cornelius, Otto E. Goldschmidt, R. L.
Griffin, Herbert V. Kohler, John Kachelmeyer
(alt.), G. W. E. Todd

## British Merchandisers Organize; Agree on Standard Definitions

E NGLAND'S shops have decided that it pays to give their customers carefully prepared. accurate information concerning the goods they buy. They have standardized the terms used in describing merchandise so that a term used in one shop will mean the same in every other shop; and will have the same meaning to both merchandiser and purchaser.

The 10,000,000 women shoppers who do England's family buying can now make their purchases in shops where textiles, furs, gloves, hosiery, leather, furniture, and many other items of ordinary purchase, are named and described in terms which have been carefully defined and agreed upon by members of the Retail Trading Standards Association.

This Association has been at work for more than two years securing the agreement of leading shops on commonsense shop rules and description of goods. An emblem "The Sign of Straightforward Shopkeeping," consisting of an arrow and the letters "SSS" indicate the shops which subscribe to the Standards agreed upon.

If a shopper is doubtful as to whether a "wool" blanket is made of all wool or wool with a mixture of some other material, or if she is doubtful of the size of a "single" bed, or is not sure what "kip" leather is, she can ask the sales girl for a copy of "Standards of Retail Practice," the text book of the Association, and can read there the exact definition and specifications to which the material she is buying must conform.

#### Violators Punished

In case a shopper believes that the material purchased in one of the Association shops does not actually meet the requirements given in the "Standards of Retail Practice" a Tribunal has been set up, to which she can bring the facts and seek redress. If a shop wilfully and persistently misleads the customer, it will be warned or fined by the Tribunal, or will be expelled, and its emblem withdrawn. The Tribunal is "completely independent and owes its responsibility to the public" according to the Intelligent Woman's Guide to Shopping, which announces the establishment of the Retail Trading Standards Association.

**Emblem Marks Shops Using Standard Terms** 

Consumers Find Protection In Information Service of Shop Association

The guiding principle of the Association is honesty. It is defined as follows:

"If descriptions intentionally or otherwise lead the customer reasonably to believe that merchandise is more desirable by reason of price, quality, or suitability for a purpose than it actually is, they are inaccurate or misleading."

Certain fair trade practices are to be insisted upon: For instance, if an article does not live up to the implied guarantee carried in the words "unshrinkable," "fadeless," ladderproof," "unbreakable," etc., shops in the Retail Trade Standards Association are pledged to replace the article.

The background and purposes of the Association are summarized by the *Intelligent Woman's Guide to Shopping*, a popularly written explanation of the Association's plan containing some of the standards used by the Association, as follows:

"It is the purpose of this Association to remove all justification for suspicion, to make wariness unnecessary and out-of-date, to enable women to go shopping in new places with as much confidence as where they have for years found the salesmen friendly and trustworthy. The Association marks the formal end of the era of 'Caveat Emptor'—'Let the Buyer Beware.' It is to put knowledge in the place of uncertainty. It is to invite women when they go shopping not to beware but to be informed.

"It must not be thought that the motive behind this organization was only to remove some misdemeanor out of salesmanship or advertising. It was not because drapers intended to mislead that so often they sold articles which did not fully conform to the description they gave across the counter or to the announcements in catalogs or letters. It was because of the immense and increasing technical difficulty of arriving at a description which would mean exactly what it said, which would mean the same thing to the manufacturer, to the sales assistant, and to the customer.

"An examination of the pages which follow in this booklet will give scores of examples of the fact that the difficulty in the way of giving exact information to the customer was not the lack of honesty on the part of the ATION

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"That was the main difficulty. Under it grew up the less common difficulty of wilful and interested misrepresentation. Traders have sometimes felt that since there in accuracy of statement, in any case was bound to be inaccuracy of statement, in any case there was no great vice in adding a bit of their own. Language became conventional, not actual.

"The aim of the Association is to remove both these causes of inaccuracy, ambiguity, and misrepresentation. It provides a set of definitions which will enable the customer and the assistant to be certain that they always understand each other, that they mean the same things by a silk fabric and a woolen fabric, by an article of oak and an article of silver. It registers a determination on the part of its members to use these definitions in securing absolute clearness of statement to the customer, and to refrain from words of any kind inconsistent with absolute honesty of purpose."

#### Joseph Allen Johnson

Joseph Allen Johnson, chief electrical engineer, Buffalo, Niagara and Eastern Power Corporation, who had been active in the work of the American Standards Association through membership on the Electrical Standards Committee as well as on several sectional committees, died October 4, 1935.

As electrical engineer for the Niagara Falls Power Company, Mr. Johnson became responsible for many important features of the electrical design of the Niagara development during the period of its rapid growth from 1918 to 1924.

Perhaps the most important of the many developments in the art of power generation and transmission in which Mr. Johnson took a prominent part was that of the system of generator voltage control by individual regulators, which he originated and pioneered in the plant of the Ontario Power Company about 1910, and which he described in a technical paper. His contributions to the art of generator testing by means of the retardation method are also well known.

He was junior past president of the American Institute of Electrical Engineers, and was active on the technical committees of the A.I.E.E., as well as having served as director and vice-president. He was also a member of the American Association for the Advancement of Science.

#### A.S.T.M. Supplement Contains New and Revised Standards

The second supplement to the 1933 Book of A.S.T.M. Standards, containing 36 standards adopted or revised during the past year by the American Society for Testing Materials, was recently published by the Society.

The 1933 Book of A.S.T.M. Standards, Parts I

and II, together with the 1934 Supplement and the current, 1935, Supplement, contain all of the 504 standards of the Society now in effect.

In the current Supplement, nine standards relate to metals and 27 standards relate to nonmetallic materials.

Several of the revisions published in the 1935 Supplement apply to A.S.T.M. Standards which were approved by the American Standards Association in their original form. These are:

Chemical Analysis of Manganese Bronze (A.S.T.M.

B27-35; ASA K3-1935)
Test for Dilution of Crankcase Oils (A.S.T.M. D 322-35; Z11.29-1933)

Test for Distillation of Gasoline, Naphtha, Kerosene, and Similar Petroleum Products (A.S.T.M. D 86-35; ASA Z11.10-1930)

Test for Precipitation Number of Lubricating Oils (A.S.T.M. D 91-35; ASA Z11.30-1930)
Test for Water and Sediment in Petroleum Products, by Means of Centrifuge (A.S.T.M. D 96-35; ASA

Routine Analysis of Dry Red Lead (A.S.T.M. D 49-35; K16.1-1935)

Copies of the 1935 Supplement to the Book of A.S.T.M. Standards can be obtained from the American Society for Testing Materials, 260 S. Broad Street, Philadelphia, at \$1.50.

#### Micro-Copy Film To Be Simplified

A proposed Simplified Practice Recommendation concerning the width of photographic film used in making micro-copies of documents has been mailed to libraries, educational institutions, and others interested, for their consideration and approval, according to an announcement of the Division of Simplified Practice, of the National Bureau of Standards.

The program establishes two widths of photographic film, to aid in stabilizing the development of this specific method of reproducing records. The widths are 16 millimeters and 35 millimeters. A representative standing committee will keep the recommendation abreast of current technical research concerning the relationship of film width to lens systems, image size, reduction ratio, and film emulsion. This study is being coordinated to the end that essential apparatus may be designed, built, and distributed with the assurance that abrupt changes will not hamper the users.

Constructive comments will be referred to the National Research Advisory Committee for the National Bureau of Standards Research on Reproduction of Records. Copies of the proposed recommendation may be secured from the Division of Simplified Practice, National Bureau of

#### **Pacific Coast Building Documents Published**

Architects, engineers, contractors, building officials, and others who have to do with the construction of homes or business and industrial buildings, bridges, and highways will be interested in Specification Documents for Building Materials and Construction published for the Pacific Coast Building Officials Conference by R. C. Colling and Associates, Los Angeles. The book was classified and arranged by David H. Merrill, and Theodore C. Combs.

It includes under one cover for the first time all specifications referred to in the Uniform Building Code under which 150 cities and counties in the United States operate. These documents are legally a part of the Code, and are required to be filed with city or county clerk. Until now they have been found only in pamphlet form separately and several only in typewritten or mimeographed sheets.

"Specification Documents" contains 63 standard and tentative specifications and test programs compiled from many sources, classified and arranged for ready reference. Nearly every major engineering and technical society has assisted in their preparation. The publishers mention among the sources the following: American Society for Testing Materials; American Concrete Institute; National Fire Protection Association; National Board of Fire Underwriters; Underwriters' Laboratories Inc.; American Welding Society; American Wood Preservers Association; U. S. Department of Commerce, Bureau of Standards; American Institute of Architects; American Society of Mechanical Engineers; American Society of Refrigerating Engineers; and the Research Department of the Pacific Coast Building Officials Con-

The text of "Specification Documents" is amplified by many drawings and illustrations. The book is so bound

that it will open flat at any page.

Available on order from Pacific Coast Building Officials Conference, 124 West 4th St., Los Angeles. 522 pp., cloth \$5.00, fabricoid \$7.50.

#### Factory "Safety Council" **Helps to Reduce Accidents**

Charles R. Wilder, vice president, Liberty Mutual Insurance Company of Boston, recently presented two bronze plaques to the Tomlinson Chair Manufacturing Company of High Point, N. C., to commemorate the achievement of two million hours of operation without a lost-time accident. The period rewarded actually ended last

This achievement was made possible through the efforts of a safety council of 74 men in key points of the works. These men have monthly meetings at which all suggestions for safety are brought up, discussed, and finally worked out. The safety council, besides educating the older employees to safe methods, takes special care to point out to new men the safety work of the plant, the special safety features of the machine they are to work, and danger points to be avoided.

C. F. Tomlinson, company treasurer, points out that he is particularly proud of this record because the company employs more than 500 men and they use much high-speed machinery.

The National Safety Council assigns first place for safety to the Western Clock Company, La Salle, Illinois, with a record of 11,114,600 man hours without a lost-time accident. Second place is given to E. I. du Pont de Nemours & Company rayon plant at Old Hickory, Tenn., for 9,116,634 man hours. Third is United Shoe Machinery Corporation, Beverly, Mass., with 8,472,248.

In the wood-working business Tomlinson leads. Second is the wood shops of the Western Electric Company with 1,529,656 man hours. And third is General Electric Company (pattern shop), Lynn, Mass., 917,150.

#### **Stocking Buyers Get Facts** In Research Publication

A thorough study of hosiery, its manufacture and wearing quality, presented in an easily understood style, with diagrams which clarify the points to consider in buying properly constructed and sized hose, was published recently by the Standardization Committee of the Ohio Home Economics Association.

Type of construction, texture, finish, fit, and

wear are given careful consideration.

The study, under the direction of Rosamond C. Cook, Professor of Home Economics, University of Cincinnati, chairman of the Ohio Home Economics Association's Standardization Committee, was made possible through a gift of \$1,200 for hosiery research at the School of Household Administration, University of Cincinnati.

Copies of the booklet, The Hose We Buy-and Wear, may be obtained from Miss Cook at 15 cents each, or ten cents each in lots of 12 or more.

#### Propose New Standards For Cotton Grades

Revision of the United States official standards for cotton grades has been proposed by the Bureau of Agricultural Economics with a view to making the white grades more representative of the cotton crop and of eliminating grades for types of cotton which have become scarce. Arrangement of samples within the grade boxes has been changed to facilitate use of the standards .-Domestic Commerce, August 10.

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## U. S. Bureau of Mines Continues Its Aggressive Health and Safety Program

by John W. Finch

Director, United States Bureau of Mines

DURING the current fiscal year, the United States Bureau of Mines will continue, as aggressively as its funds will permit, its investigative and educational program designed to assist the mineral industries to attain safer and more healthful conditions.

The Health and Safety Branch of the Bureau will have a full-time personnel of 74 persons, including 27 engineers and 24 safety instructors. These employees are located mainly at the minesafety stations at Berkeley, Calif.; Birmingham; Phoenix; McAlester, Okla; Norton, Va.; Pittsburgh; Salt Lake City; Seattle; Vincennes, Ind.; Jellico, Tenn.; Wilkes-Barre, Pa.; Denver; Duluth; and Juneau, Alaska; and on Mine Rescue Car No. 6 in the Pennsylvania anthracite region and on Mine Rescue Car 8 in West Virginia.

An important feature of the safety work will be to give the Bureau of Mines first-aid and minerescue courses to the 75,000 to 100,000 persons in the mining and allied industries who annually take that training. During the past fiscal year, 77,210 persons in 484 mining communities in 35 States were given this training, while 419,822 persons were trained during the past 5 years. The Bureau's special accident prevention course will be given to approximately 2,000 mining officials; and about 100 mining community safety clubs or chapters of the Holmes Safety Association will be established.

The safety engineers and instructors will make safety addresses at about 1,000 safety meetings; they will stage 25 to 50 safety exhibits at fairs, mining institutes, etc., and stage or attend from 50 to 100 first-aid and mine-rescue meets in from 15 to 25 States and will make safety inspections and reports on 150 to 200 mines or mining plants.

Sharp Reduction in Mine Fatalities and Accidents Is Shown Since Bureau Began Its Wide-Range Educational Effort

First - Aid and Mine - Rescue Courses Are Given to Thousands of Persons in Industry Every Year

Seventy-five to 100 reports on mine fires, explosions and other mine accidents will be made and 75 to 100 papers on various subjects in safety in mining will be prepared for publication.

Hundreds of samples of mine air and mine dust are taken every year and upon being analyzed by the chemists of the Bureau of Mines at Pittsburgh, Pa., the analytical results are given to the mines involved and usually interpretations made as to the safety significance revealed by the analyses.

Several thousand letters of inquiry on safety-inmining are answered annually and in addition hundreds of copies of various kinds of safety literature are given to persons who make safety inquiries.

#### Spreading the Gospel of Safety

Several engineers of the Safety Division serve as officials of mining organizations or as members of committees engaged in safety work, and much research, study, and other effort are expended in this manner in trying to forward safety in mining. In its various ramifications the approximately 50 field workers of the Safety Division spread the gospel of safety in mining by coming into rather close personal contact with between 350,000 and 500,000 persons in the mining and allied industries annually.

Largely as a result of the various safety activities of the Bureau of Mines, major coal-mine explosion disasters in the United States have been

#### Cooperation Beneficial, **Mines Official Says**

I believe that the participation of members of the staff of the United States Bureau of Mines with organizations such as the American Standards Association is mutually beneficial. If nationally acceptable standards can be adopted by such consultation and cooperation much will be done toward alleviating industrial and occupational accidents .- John W. Finch.

reduced from an average of about 17 per year for the 5-year period before the Bureau of Mines was organized to 5 per year for the 5-year period 1930-34 and there was but 1 in 1933, only 2 in 1934, and in the year 1935 there have been 3 major coal mine disasters to September 1. Not only have fire and explosion disasters in our mines almost ceased to occur, but also the occurrence of accidents of all kinds (fatal as well as non-fatal) has decreased markedly, especially within the past 5 years.

The rate of occurrence of accidents in both coal and metal mines reached an all-time low in 1932, and the rates for 1933 and 1934, while slightly higher than for 1932, are unquestionably lower than for any other year except 1932 (final figures for 1934 are not yet available).

The field health work of the Bureau is being resumed this fiscal year and the efforts of the 5 full-time employees, which available funds will allow of assigning to this work, will be augmented by part time services of some of the field engineers of the Safety Division.

#### "Dust Diseases" Is Chief Problem

The main problem will be that of obtaining field data chiefly in and around underground mines as to the occurrence of dust disease, the conditions that bring about the disease, and the changes in practice or conditions which will be necessary to alleviate or to eliminate the incidence of the disease.

Other subjects which will be given study are heat and humidity in mines, air conditioning in mines and mining plants, the types of gases released by blasting in mines and their effect on health and safety of mine workers. Studies will be made regarding the effect of poor vision of mine workers on health and safety and the extent and effect of the pollution of the air of mines

or mining communities by spontaneous fires in mines, gob piles, etc.

Many other problems affecting health in the mining and allied industries might well be studied, but neither funds nor personnel will allow.

#### Leaders Advise Bureau

Twenty-nine leaders of the mining and allied industries are members of an Advisory Board to the Bureau of Mines, organized recently to advise the Director of the Bureau on matters of policy affecting the Bureau's relations with industry. The members of the Board are:

- Health and Safety Appliances: John T. Ryan, vice president and general sales manager, Mine Safety Appliances Company; E. W. Bullard, president, E. D. Bullard Company.
- Eastern Bituminous Coal Producers: James P. Williams, Jr., president, National Coal Association, vice-president, the Koppers Coal Company; Lewis E. Young, vice-president, Pittsburgh Coal Company.
- dent, Pittsburgh Coal Company.

  Eastern Anthracite Producers: Louis C. Madeira III, executive director, Anthracite Institute; Cadwallader Evans, Jr., general manager, the Hudson Coal Company.

  Western Coal Producers: Eugene McAuliffe, president, Union Pacific Coal Company; D. S. Hanley, vice-president, Pacific Coast Coal Company, and secretary-treasures.
- urer, Coal Producers Association of Washington. Mining Employees: John L. Lewis, president, United
- Mine Workers of America; A. D. Lewis, United Mine Workers of America; William Green, president, American Federation of Labor; Thomas H. Brown, president, International Union of Mine, Mill, and Smelter
- Oil and Gas Field Workers: H. C. Fremming, president, International Association of Oil Field, Gas Well, and Refinery Workers of America; John L. Coulter, secretary-treasurer, International Association of Oil Field, Gas Well, and Refinery Workers of America.
- Copper Industry: Cleveland E. Dodge, vice-president, Phelps Dodge Corporation.

  Silver, Lead, and Zinc Industries: H. A. Guess, vice-president in charge of mining, American Smelting and Refining Company; Frank M. Smith, smelter director, Physical Lett. Smelter. Bunker Hill Smelter.

  Non-Metal Mineral Industries: Otho M. Graves, presi-
- dent, General Crushed Stone Company.

  Mineral Policy and Government: Dr. C. K. Leith, member, Science Advisory Board; member, Business Advisory and Planning Council for Department of Commerce; member, Planning Committee for Mineral Policy; Department of Geology, University of Wiscon-
- Mining and Metallurgical Engineering: Eavenson, president, American Institute of Mining and Metallurgical Engineers.
- Liaison Representative for Mining Industry in General: Howard I. Young, president, American Mining Congress, president, American Zinc, Lead, and Smelting Company; Julian D. Conover, secretary, American Mining Congress
- Iron and Steel Industries: Thomas M. Girdler, vicepresident, American Iron and Steel Institute, chairman of the Board and president, Republic Steel Corporation. Petroleum Industry: Amos L. Beaty, vice-president and
- member executive committee, Phillips Petroleum Company, and director, American Petroleum Institute; Axtell J. Byles, president, American Petroleum Insti-

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tute; W. R. Boyd, Jr., executive vice-president, American Petroleum Institute.

Natural Gas Industry: Frank L. Chase, member, advisory council, American Gas Association, second vice-president and operating manager, Lone Star Gas Company; J. D. Creveling, advisory council, American Gas Association.

Explosives and Research: J. Thompson Brown, vice-president, E. I. duPont de Nemours and Company.

#### A.S.T.M. Proposes Changes In Petroleum Test Methods

New tentative methods of test for flash point by means of the tag closer tester and for viscosity by means of the Saybolt viscosimeter have been published as tentative by the American Society for Testing Materials in accordance with the recommendation of Committee D-2 on Petroleum Products and Lubricants. It is intended that these tentative methods, when adopted, will replace the present standard methods of test for Flash Point of Volatile Flammable Liquids (ASA Z11.24-1932; A.S.T.M. D 56-21), and Viscosity of Petroleum Products and Lubricants (ASA Z11.2-1933; A.S.T.M. D 88-33).

An editorial revision has been made in the Standard Method of Test for Cloud and Pour Points (ASA Z11.5-1934; A.S.T.M. D 97-34).

Tentative revisions of the standard methods of test for Flash Point by Means of Pensky-Martens Closed Tester (A.S.T.M. D 93-22; ASA Z11.7-1928) and Saponification Number (A.S.T.M. D 94-28; ASA Z11.20-1930) have also been published.

These tentative revisions are given in detail in A.S.T.M. Standards on Petroleum Products and Lubricants, published by the A.S.T.M., which includes the report of Committee D-2 and also all standards and tentative standards in this field. This pamphlet is available from the A.S.T.M., 260 South Broad Street, Philadelphia, or from the ASA office. The price is \$1.75.

#### Foundrymen Approve Fluidity And Sintering Tests for Sand

At the recent convention of the American Foundrymen's Association in Toronto, a number of the methods used in the testing of foundry sands were approved as standard. Among these were the fluidity test and the sintering test, both of which were developed in the experimental foundry of the National Bureau of Standards. The fluidity test gives information on the ability of molten metal to fill a foundry sand mold. The length of a bar of small cross section cast as a

#### Sees Increased Efficiency In ASA Sound Level Work

Many irrefutable reasons may be given why the common hum, clatter, hiss, and crash, which seem to be a part of working machinery, should be entirely eliminated, or at least reduced to a point where they are no longer annoying to the nerves of people who must subject themselves to them.

Due, probably, to the fact that noise elimination has not been considered an economic necessity, this problem has been one of the last to be attacked in a practical way by scientists. At present, however, distinct progress is being made through studies being conducted by the American Standards Association to establish a standard for noise instruments.

It has been suggested that such instruments will enable comparisons whereby standard levels of quietness can be established just as we have established standard conditions of temperature, humidity, and light intensity. This first definite step toward more quiet operation of industrial machinery will find no opposition among power plant engineers.—

Power Plant Engineering, July 1.

spiral at a known pouring temperature is the criterion used. In the sintering test, the temperature at which foundry sand sinters and adheres to an electrically heated platinum ribbon is determined. This is taken as the index of refractoriness of the foundry sand under investigation.—Technical News Bureau, National Bureau of Standards, November, 1935.

#### To Establish Standard For Women's Dress Sizes

The National Retail Dry Goods Association has requested the cooperation of the National Bureau of Standards in the establishment of Commercial Standard size designations and measurements for dresses and other shoulder garments.

It is expected that sizes and methods of measuring, labeling and other criteria for women's, misses, juniors, and children's dresses will be covered in the standard.

# **Proper Balance** of These Factors

## the Car, the Road, the Driver

### Will Aid to Reduce Highway Accidents

#### by

#### Paul G. Hoffman

President, Studebaker Corporation; Member, ASA Committee on Standards for Safety Inspection of Motor Vehicles; Chairman, Automobile Manufacturers Association Safety Traffic Committee.

TREET and highway safety depends upon three factors: the car, the road and the driver. The car has never been safer. In general, we have good roads. The average American driver is a skillful and considerate operator. The trouble is not with the factors, themselves, but with the lack of balance between them.

The cars produced this year by the automobile industry have more inherent safety than ever before. The industry has pledged itself to never produce cars less safe than human ingenuity and engineering skill can contrive. This pledge has never been broken and I feel certain that it never will be. It is protected by the earnest effort of every automobile executive and by the expenditure of millions of dollars each year in testing every development before it is incorporated and put in the hands of the driver. The American citizens cannot buy any device which is more accurately designed to perform its services than is the modern car.

This does not mean that the cars of tomorrow will not be safer. They will be. Each year new opportunities are developed for building greater protection into the vehicle.

#### Inadequate Facilities Are Costly

The fact is, the modern car has gone so far beyond the other two elements in the safety problem that a lack of balance has been created. Roadways and operators have not as yet developed a capacity to utilize the full efficiency of the vehicle with safety.

Let us see what the situation is. Despite the remarkable improvements which have been made, it is a fact that the greater part of the street and highway mileage of the United States is not and never has been adjusted to the use of automotive equipment. The typical city shows a street system which, in general layout and design, was constructed for the needs of a horse and man age. Operators of passenger cars and commercial vehicles are able to utilize only a small part of the efficiency of their capital investment in automobiles. Even under the most favorable city conditions, over-all speeds can rarely be raised above twenty miles per hour. This is for vehicles capable of delivering safe and economical service at more than twice such speeds. Even such efficiency as is obtained is at an accident cost which is coming to be almost intolerable.

The highway situation is somewhat better but is still far from balanced. An examination of almost any important trunk route between metropolitan centers illustrates a highly unsatisfactory condition. Route 1, between New York City and Boston, is a typical example. A few miles of this route are of the highest type of construction and illustrate what can and ought to be done in giving the modern motor car a safe road-bed suited to its efficiency. In general, however, this route has a very unsatisfactory variety of pavement surface, width and condition. One can never drive more than a few miles without being confronted with town or city congestion.

#### Improvements Needed

The issue is very clearly drawn. Either full progress in the development of the motor car is going to be hampered because of lack of opportunity to use its efficiency safely or the street and highway system must be brought into balance.

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### American Standards and The Car and The Driver

Two of the three elements of motoring safety, the car and the driver, are being considered by the American Standards Association (Sectional) Committee on Standards for Safety Inspection of Motor Vehicles (D7), of which Mr. Hoffman is a member, representing the Automobile Manufacturers Association. The project will cover safety standards for motor vehicle inspection, and will serve as a guide to motor vehicle administrators and other enforcement bodies which require periodic inspection of cars, buses, and trucks.

The committee will consider safety advice to motorists as well as the mechanical requirements of component parts, such as brakes, lights, steering equipment, etc., in connection with inspections.

The proposed Specifications and Methods of Testing for Safety Glass (Z26) is now before the Association for approval as an American Standard.

Another project, which has a definite bearing on motor safety, is the Manual of Uniform Traffic Control Devices for Streets and Highways (D6) which has just been approved by the ASA.

The first project undertaken by the American Standards Association was the Safety Code for Colors for Traffic Signals (D3) which was approved as an American Standard by the Association in 1927. This has universal acceptance in this country and in many of the leading motoring countries of the world.



The fault does not lie with the highway engineer. He knows how to build safe streets and highways. There are many examples: The limited way plan for the City of Chicago, the express highway system of New York City, already in existence and being expanded rapidly, the Westchester County parkway system and the progressive designs generally illustrated in New Jersey.

Ultimately, the fault lies with the American public which has not yet come to a point of demanding streets and highways safe for their use. Likewise, they have failed to recognize that the taxes which they have paid as motorists were pledged for the building of safe and adequate public ways and that these funds have, to a very considerable degree, been diverted to other than highway purposes.

#### Few Motorists Responsible for Accidents

The final key to the safety situation is and must always remain in the hands of the individual driver. Almost any car can be safely driven over almost any highway if the driver uses common sense. Conversely, the best car on the best road is highly dangerous without this element of common sense. The great majority of American drivers take the modern car and accurately adjust their driving to whatever shortcomings the roadway may present. They do not cause our traffic

accident problem. Accidents come from the very small minority of drivers who are so impatient and so careless of their own safety and the safety of others that they are unwilling to adjust their vehicles to the traffic difficulties around them.

The many honest, sensible drivers should not be made to suffer for the faults of the few. This simply means that we must recognize the necessity for a vigorous and highly selective program of traffic law enforcement. Those individuals who are unwilling to adjust their use of the modern car to current conditions in such a manner as to make it possible for the great majority of the motoring public to use such streets and highways as we have with pleasure, convenience, and, above all, with safety, must be eliminated from the picture. If drivers cannot be made to grow up to their responsibilities of handling the best which the automobile manufacturer can produce, it is inevitable that progress in the motor car perfection is going to be severely handicapped.

The American people have been confronted with and have solved many problems equal to the current traffic problem. It is my sincere belief that they are not going to be defeated by this problem. If it is solved by bringing into balance the three essential safety factors, America of tomorrow is going to have an automotive transportation system far better and safer than anything that can be imagined today.

# **Consumers Organize Local Groups For Better Quality, Lower Price**

Groups of consumers, organized into County Consumers Councils, are working throughout the United States, studying prices and standards of quality of clothing, fuel, and shelter with the idea that knowledge results in better and more quality for less money.

The County Consumers Councils were organized about a year ago and now work under the direction of the Consumers' Division of the NRA.

Study of prices, the Councils found, almost invariably led to the question of standards of quality. Replies to requests for information on qualities of canned and other foods, coal, textiles for household use, wearing apparel, equipment, appliances, and construction materials for the home have been an important part of their work.

An educational project on quality and labels of sheets, towels, blankets, hosiery, silk slips, and canned goods, conducted throughout the country by the Councils in an attempt to bring together and analyze the information about quality which merchandisers make available to their customers, disclosed the lack of a common language descriptive of commodities among consumers, retailers, and wholesalers.

Activities of the County Consumers Councils also extend to the compliation of information concerning consumers goods from governmental agencies, college laboratories, and responsible private organizations, in addition to their own inquiries and analyses.

One Council has made analyses of canned goods in cooperation with a university laboratory and plans to extend its testing services to other products, such as milk, ice cream, and motor oil.

Another Council enlisted the aid of local retail dry-goods merchants to bring pressure for qualitative labeling to bear upon manufacturers and supply houses, with the result that every order going out from 25 leading retail buyers in a large western city carries a statement of the main points of information desired by consumers upon goods that the retailer buys.

#### **Educational Work Being Done**

County Consumers Councils promote institutes, bring together exhibits, and maintain "consumer book shelves" in public libraries. From a score of local radio stations every week over a national front that extends from Massachusetts to the State of Washington official County Consumers Councils sponsor broadcasts in the interest of consumers.

County Consumers Councils Interest Local Purchasers in Standards and Other Consumer Problems.

The Consumers Councils are not confining their activities to local affairs. Representatives of two Councils attended a hearing conducted by the AAA on September 27 to determine the future of the corn-hog program. This program has increased farm income but has also greatly increased prices. The consumers' representatives urged caution in programs toward higher prices, because, they said, prices have already climbed faster than worker income. They asked that the consumer be given more independent representation in formulating the new program.

#### Dr. Hamilton Is Director

Dr. Walton H. Hamilton, under whose direction the County Consumers' Councils are working, is President's Advisor on Consumer Problems and Director of the Consumers' Division.

Commenting on the Councils, Dr. Hamilton said

recently:

"Two hundred county councils, working under the direction of the agency's field service, will disseminate information on prices, quality standards, consumer cooperatives, and legislative problems and gather data for a study of consumers' problems in widely scattered sections of the county; in addition, these councils keep a finger on the pulse of the consuming public.

"Publications dealing with all phases of consumers' problems are produced and distributed to county councils and to a mailing list of interested citizens. Pamphlets are available on simple consumers' tests of quality, consumers' co-operative organizations, and the progress made and expected in establishment of standards and uniform

labeling.

A monthly publication which covers current problems from the consumer's viewpoint goes regularly to county councils and interested citizens. A growing mailing list reflects the fact that rising prices have served to stimulate a general interest in the consumer's difficulties—a fact to which the administration was not insensible in the creation of an agency which will express that interest."

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## "Use Values" Determine Grades Proposed for Lumber, Timber

RADES of lumber and timber based on the most important "use factor" for specific structural requirements have been proposed by committees of the American Society for Testing Materials, the American Engineering Railway Association, and the American Association of State Highway Officials.

Existing specifications for structural lumber and timber are seldom used, it was found, because the complexity of the rules makes it difficult to interpret them.

In the present specifications, a grade of a certain name has one value in one species of lumber or timber and a different value in another.

In the proposed simplified specifications, the grades are named in terms of their use value. For example, in bending grades, four factors must be taken into consideration: bending stress, shearing value, bearing value or compression perpendicular to grain, and modulus of elasticity. The most important factor for timber used as structural joists and planks is the bending stress. For this purpose, therefore, the grade of Dense Douglas Fir (Coast Region), Dense Douglas Fir (Inland), Dense Longleaf Southern Pine, and Dense Shortleaf Southern Pine is given as 1800 lb f (extreme fiber stress in bending in pounds per square inch) Structural Joist and Plank. All of these varieties of lumber have a maximum slope of grain of 1 in 12. Dense Larch which is also graded as 1800 lb f Structural Joist and Plank has a slope of grain of 1 in 14. Also specified as a part of the grading are the maximum permissible size, in inches, of knots for different widths of face, shakes, checks, and splits, and wane. Tidewater Red Cypress, Oak, Dense Longleaf Southern Pine, and Close-Grained Redwood are graded as 1400 lb f Structural Joist and Plank but have differences in slope of grain, size of knots, and in the other provisions of the specifications.

#### **Most Important Factor**

For use as structural posts and timbers the most important factor is the compression stress parallel to grain in pounds per square inch. For this purpose, Dense Douglas Fir (Coast Region), Dense Douglas Fir (Inland), Dense Larch, Dense

American Railway Engineering Association and American Society for Testing Materials Consider New Methods of Grading Lumber and Timber

Longleaf Southern Pine, and Dense Shortleaf Southern Pine are graded 1300 lb c (compression stress parallel to grain in pounds per square inch) Structural Posts and Timbers, with specifications for slope of grain, knots, shakes, checks, splits, and wane.

#### Rules in Two Parts

The proposed rules consist of two parts. The first part includes general requirements which are applicable to all stress-grades; and the second part gives the actual stress-grades for joist and plank, beams and stringers, and posts and timbers.

In addition, the proposed specifications include the standard rough and dressed sizes for the various uses of the timber and the standard stressgrades and working stresses.

The stress values assigned to the different grades are those for continuously dry location, and except for the two grades of Inland Empire Douglas fir and three grades of larch, may be obtained by following the procedure outlined and using the basic stress and procedure given in a report of the U. S. Forest Products Laboratory, U. S. Department of Agriculture Miscellaneous Publication No. 185, entitled "Guide to the Grading of Structural Timbers and the Determination of Working Stresses," February, 1934.

The proposed new rules were presented to the American Railway Engineering Association at its Annual Meeting in March by its Committee on Wooden Bridges and Trestles, as a tentative revision to its standards on structural timbers. They were submitted to the American Society for Testing Materials for publication as information in June, 1935, as a proposed revision of A.S.T.M. D 245-33.

#### Federal Specifications Are Offered for Sale

Specifications for materials purchased by the Federal Government, ranging from acetic acid to wheelbarrows, are obtainable from the office of the American Standards Association or from the Superintendent of Documents, Government Printing Office, Washington, D. C. The specifications were approved by the Director of Procurement for the use of all departments and establishments of the Government.

Specifications recently received by the ASA office are:

Acid, Acetic (Technical) O-A-76
Belting; Conveyor, Cotton, (Solid-Woven) JJ-B-191
Cable and Wire; Rubber-Insulated, Building-Type,
Superaging-Grade (0 to 5,000-volt Service) J-C-106
Clamps; and Hand Screws GGG-C-406
Figures and Letters; Stamping, Steel GGG-F-311
Filler; Wood, Paste TT-F-336
Lamps; Electric, Incandescent, Large, Tungsten-Filament W-L-101b (1936 Supplement)
Lamps; Electric, Incandescent, Miniature, Tungsten-Filament W-L-111a
Lamps: Electric, Incandescent, Miniature, Tungsten-

Lamps; Electric, Incandescent, Miniature, Tungsten-Filament W-L-111a (1936 Supplement) Napkins; Table, Paper UU-N-106 Oil; Lubricating Marine-Engine, Compounded VV-O-541

Oil; Lubricating, Marine-Engine, Mineral VV-O-551 Oil; Lubricating, Refrigerating-Machine VV-O-581 Oil; Lubricating, Steam-Cylinder, Compounded VV-O-601

VV-0-601
Oil; Lubricating, Steam-Cylinder, Compounded
VV-0-601
Oil; Lubricating, Steam-Cylinder, Mineral VV-0-6
Oil: Lubricating, Turbine, Dynamo, and High-Spee

Oil; Lubricating, Turbine, Dynamo, and High-Speed-Steam-Engine VV-0-661
Overshoes; Rubber ZZ-0-841
Plaster-Board; Gypsum SS-P-431a
Remover; Paint and Varnish (Organic-Solvent-Type)

Scales, Weighing; General Specifications AAA-S-121a Sets-and-Headers; Rivet, Hand GGG-S-246 Sheeting; Cotton, Laundry (Cover-Cloth) CCC-S-276

Sheeting; Cotton, Laundry (Cover-Cloth) CCC-S-276 Squash; Fresh HHH-S-666 Tanks; Photographic, Hard-Rubber, Developing and

Fixing ZZ-T-91
Tar; Refined, Mixed-in-place Construction (for) Roads
B-T-136

R-1-136 Tips; Rubber, (for) Crutches, Furniture, etc. ZZ-T-351 Trays; Photographic, Hard-Rubber ZZ-T-636

Wall Board; Gypsum SS-W-51a Wheelbarrows KKK-W-291

#### North Carolina Provides Compensation for Diseases

The State of North Carolina on May 26 became the twelfth state in the Union to adopt an amendment to its Workmen's Compensation Law so that it will now include occupational diseases as well as accidents as compensable disabilities, according to *National Safety News*, May.

The outstanding features of the law are that it

provides for a medical committee to examine prospective and present employees in two dust industries, silica and asbestos; that it provides for the removal of employees in the early stages of disease; and that vocational training shall be provided for those who are removed.

Commissioner T. A. Wilson, of the State Industrial Commission, pointed out that the amendment as passed was agreed to by both employers and employees in the state who met in many

conferences.

#### Standard for Safety Glass Is Submitted to ASA for Approval

Specifications and Methods of Test for Safety Glass, a new safety code developed under the auspices of the American Standards Association, has been submitted by the sponsors for approval by the Association.

The code, which is in two sections, will be used by manufacturers of safety glass to determine the strength and other safety characteristics of glass. This first section deals with safety glass for automotive use.

The scope follows:

"Specifications and methods of test for Safety Glass (glass designed to promote safety and to reduce or minimize the likelihood of personal injury from flying glass when the glass is broken) as used for all purposes, including windshields and windows of motor vehicles, motor boats and air craft; goggles; and bullet-proof windows and partitions."

If approved, this Code will be explained fully in the next issue of Industrial Standardization.

#### Change in British Rail Design Adds 25 Per Cent to Rail Life

A change in design, which is expected to add 25 per cent to the life of the rails used by British railways, has been adopted as standard by several of the most important British lines, including the London and North Eastern Railway and the London, Midland and Scottish Railway.

The change consists of adding 1/32 in. of metal to the head of the rail, and reducing the amount of metal in the foot of the rail by the same amount. The new design gives the head of the rail 3/16 in. additional metal on top as compared with 5/32 in. additional metal as provided by the old design. The weight of the bull head rail of the old design was 95 lb per yard and the new design will weigh about 100 lb per yard.

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### Approved New and Revised Standards Bring Petroleum Test Methods Up To Date

Recognition of proven methods for testing petroleum products and lubricants has been introduced through recent approval by the American Standards Association of two American Society for Testing Materials' standards and six tentative standards. These documents, recently submitted to the ASA by the A.S.T.M., were developed by A.S.T.M. Committee D-2 on Petroleum Products and Lubricants, and were endorsed by Sectional Committee Z11, which has the same personnel as Committee D-2, and by the sponsor, the American Society for Testing Materials.

#### Keeping Standards Up to Date

As part of its program to keep previously approved standards up to date with technical progress, four American Standards and one American Tentative Standard were revised. The revisions have also been approved.

Approval as American Standard was given to Distillation of Crude Petroleum (A.S.T.M. D 285-33) and to Sampling Petroleum and Petroleum Products (A.S.T.M. D 270-33). The ASA designations of these standards are Z11.32-1935 and Z11.33-195.

The following A.S.T.M. tentative standard methods of test were approved as American Tentative Standards with the ASA designations as shown:

Color of Lubricating Oils by Means of A.S.T.M. Union Colorimeter (Z11.34-1935; A.S.T.M. D 155-34 T)

Color of Refined Petroleum Oil by Means of Saybolt Chromometer (Z11.35-1935; A.S.T.M. D 156-34 T)

Gum Content of Gasoline (Z11.36-1935; A.S.T.M. D 381-34 T)

Knock Characteristics of Motor Fuels Z11.37-1935; A.S.T.M. D 357-34 T)

Sulfur in Petroleum Oils by Lamp Method (Z11.38-1935; A.S.T.M. D 90-34 T)

Viscosity-Temperature Chart for Liquid Petroleum Products (Z11.39-1935; AS.T.M. D 341-32 T)

The revised standards approved as American Standard include the following:

Dilution of Crankcase Oils (Z11.29-1935; A.S.T.M. D 322-35)

Distillation of Gasoline, Naphtha, Kerosene and Similar Petroleum Products (Z11.10-1935; A.S.T.M. D 86-35) Precipitation Number of Lubricating Oils (Z11.30-1935; A.S.T.M. D 91-35)

Water and Sediment in Petroleum Products by Means of Centrifuge (Z11.8-1935; A.S.T.M. D 96-35)

Approved as American Standard with the designation of Z11.28-1935; A.S.T.M. D 288-35 T was a revision of Definitions of Terms Relating to Petroleum.

The tentative method of test for Knock Characteristics of Motor, Fuels outlines procedures recommended by the Cooperative Fuel Research Committee, composed of representatives of the American Petroleum Institute, Automobile Manufacturers Association, the Society of Automotive Engineers, and the National Bureau of Standards. Research by this committee on this problem has been under way since 1928. This test method is intended for determining the knock characteristics, in terms of an arbitrary scale of octane numbers, of gasolines and equivalent fuels for use in spark ignition engines other than aircraft engines. The methods now available as a tentative standard have been the subject of discussion in Committee 28 on Nomenclature and Methods of Testing Petroleum Products and Lubricants, organized under the auspices of the International Federation of National Standardizing Bodies (ISA).

#### Convenient Viscosity Chart

The tentative standard Viscosity Temperature Chart for Liquid Petroleum Products was issued by the Society in 1932. It provides a convenient means of ascertaining the viscosity of a petroleum oil at any temperature, within a limited range, provided viscosities at two temperatures are known. Conversely, the chart may be used to ascertain the temperature at which a desired viscosity is obtained. The temperature range of the chart is from —30 deg F to 450 deg F with a Saybolt Universal viscosity range of from 37 sec to 100,000,000 sec. The chart is so constructed that for any given petroleum oil the viscosity-temperature points lie in a straight line.

Separate copies of these standards are available from the American Standards Association or the American Society for Testing Materials, 260 South Broad Street, Philadelphia, at 25 cents each.

A more convenient form in which these standards may be obtained is the 1935 Report of Committee D-2 on Petroleum Products and Lubricants and Methods of Test Relating to Petroleum Pro-

ducts. This book is also available from the American Standards Association office or from the A.S.T.M. The price is \$1.75 per copy.

This 1935 report is a compilation of all standards developed by this committee. Included are related methods for testing bituminous materials and electrical insulating oils. The report also includes a summary of activities of Committee D-2 and its associated subcommittees and technical committees. In its 350 pages, the text of 65 standards and tentative standards is given.

#### **Building Standards Monthly** Covers Building Code News

With its change of name from the Conference Bulletin to Building Standards Monthly, the publication of the Pacific Coast Building Officials' Conference makes its bow as outstanding periodical covering building codes and building standards programs throughout the United States.

The change of name was effective with the October issue and it is expected to indicate more clearly to those interested the scope and field of interest of the publication.

interest of the publication.

Subjects of interest in connection with the establishment of standards for building materials and related subjects as well as building codes programs will be covered in the newly named periodical.

The Building Standards Monthly is published by the Pacific Coast Building Officials' Conference, 124 West 4th Street, Los Angeles, California.

#### Ask for Recommendation For Making Steel Bars

The National Association of Purchasing Agents has requested the Division of Simplified Practice of the National Bureau of Standards to cooperate in establishing a Simplified Practice Recommendation for color nomenclature for use in marking steel in bars.

The color code which will serve as the basis for the Simplified Practice Recommendation has been in the course of development by the National Association of Purchasing Agents since 1929. It was developed by its Committee on Iron and Steel on the basis of the Society of Automotive Engineers' designation by number of the well-known kinds of steel.

The N.A.P.A. code gives color markings for S.A.E. carbon, screw stock, nickel, nickel-chromium, molybdenum, chromium, chromium-vanad-

ium, silico-manganese and tungsten steels, and for

staybolt steel. The code has been made part of the Federal Standard Stock Catalog for the use of government department.

#### Revise Steam Pressures In Steel Fittings Standard

An Addendum to the American Standard for Steel Flanged Fittings and Companion Flanges (B16e-1932), revising Table I of the 1932 edition of the standard, has been approved by the American Standards Association, with the symbol B16e1-1935. The Addendum covers adjusted steam service pressures for temperatures above and below 750 F.

Copies of the Addendum will be given free to any one ordering the American Standard for Steel Flanged Fittings and Companion Flanges (B16e-1932). Any one who has a copy of this standard is invited to write for the Addendum,

which will be sent without charge.

#### Bureau Starts Standards Work On Wool and Part-Wool Fabrics

Definitions, nomenclature, methods of test, tolerances, marking, and labeling of wool fabrics will be covered in the work now in progress by the National Bureau of Standards as the result of a request to the Bureau from the National Association of Wool Manufacturers.

It is expected that, in line with this request, there will result a commercial standard for wool and part-wool fabrics. This standard will have as its primary objective the standardized labeling, on a national basis, of all wool and part-wool fabrics, including worsteds, to indicate and guarantee to the ultimate consumer the actual percentage of wool contained therein.

#### Consumers' Guide Explains Apple Grades

How to buy apples is the outstanding subject of the September 16 issue of *Consumers' Guide*, publication of the Consumers' Council, Agricultural Adjustment Administration.

Grades of apples, and methods of grading, as well as description of the factors which should influence a buyer in his choice of apples for various uses are fully explained in the leading article of this issue.

The Consumers' Guide may be obtained from the U. S. Government Printing Office, Washington, D. C. DIZATION

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### **Committee Asks for Suggestions** on Symbols and Abbreviations

The difficult task of preparing standard letter symbols and abbreviations for scientific and engineering terms is now being undertaken by a committee which is being organized under the procedure of the American Standards Association. Standards already approved will be studied by the committee, and many may be revised.

Because of the difficulty involved in writing this universal simplified language for all phases of engineering, the committee is urging those interested to send comments on the standards which have already been approved and suggestions for useful new symbols and abbreviations which are not now included to Dr. J. Franklin Meyer. National Bureau of Standards, Washington, D. C., chairman of the committee.

Twelve standards for letter symbols, abbreviations, and graphical symbols have been developed by the technical committee of the American Standards Association which has been at work for many years. Recently, in order to simplify the work of the committee, it was divided into two parts, one covering the letter symbols and abbreviations, and the second covering the graphical symbols.

The committee working on letter symbols and abbreviations, which is now beginning its work. has twelve subcommittees covering the following broad subjects:

Symbols and Signs for Mathematics Symbols for Physics and Mechanics Symbols for Structural Analysis

Symbols for Hydraulics Symbols for Heat and Thermodynamics Symbols for Photometry and Illumination

Symbols for Aeronautics

Symbols for Electric and Magnetic Quantities

Symbols for Radio

Abbreviations for Scientific and Engineering Terms Astronomy and Surveying

The committee which will prepare standards on graphical symbols will start work soon and will also request comments and suggestions on its phase of the problem.

The standards already approved by the American Standards Association in this field and which are being studied by the committee for possible

revision are:

Symbols for Mechanics, Structural Engineering, and Testing Materials (Z10a-1932)

Symbols for Hydraulics (Z10b-1929) Symbols for Heat and Thermodynamics (Z10c-1931)

Symbols for Photometry and Illumination (Z10d-1930) Aeronautical Symbols (Z10e-1930)

Mathematical Symbols (Z10f-1928)

Letter Symbols for Electrical Quantities (Z10g1-1929) Graphical Symbols Used for Electric Power and Wiring (Z10g2-1933)

Graphical Symbols Used in Radio (Z10g3-1933) Graphical Symbols Used for Electric Traction Including Railway Signalling (Z10g5-1933) Graphical Symbols for Telephone and Telegraph Use (Z10g6-1929)

Abbreviations for Scientific and Engineering Terms (Z10i-1932)

Copies may be obtained from the American Standards Association office, at prices ranging from 20 cents to 40 cents.

#### **ASA Representative** Leaves Los Angeles

George M. Richardson, past president of the National Association of Purchasing Agents and of the Purchasing Agents' Association of Los Angeles, and local representative in Los Angeles of the American Standards Association, is now district manager of the Phelps Dodge Copper Products Corporation, Seattle, Washington. No successor to Mr. Richardson has been appointed as ASA local representative in Los Angeles.

Local representatives keep a complete file of approved American Standards and other American Standards Association material for sale or reference purposes. The following are now ASA representatives for their respective communities:

F. V. Bistrup, Industrial Department Secretary, Associated Industries of Massachusetts, 31 St. James Avenue, Boston, Mass.

E. D. Strickland, Executive Secretary, Engineering So-

ciety of Buffalo, Hotel Statler, Buffalo, N. Y. Edgar S. Nethercut, Secretary, Western Society of Engineers, 205 West Wacker Drive, Rm. 1200, Chicago,

C. R. Sabin, Secretary-Manager, Cleveland Engineering Society, 410 Hanna Building, Cleveland. Ohio.

Monroe L. Patzig, Secretary-Treasurer, Engineers Club of Des Moines, Des Moines, Iowa.

Bernard Moll, Secretary, Grand Rapids Engineers Club, City Hall, Grand Rapids, Mich.

William H. Sanford, Secretary-Treasurer, The Engineers Club of Philadelphia, 1317 Spruce Street, Philadelphia Philadelphia, Pa.

K. F. Treschow, Secretary, Engineers Society of Western Pennsylvania, William Penn Hotel, Pittsburgh,

O. L. Angevine, Executive Secretary, Rochester Engineering Society, 111 East Avenue, Rochester, N. Y. C. W. Whitney, Executive Secretary, Purchasing Agents' Association of Northern Calif., 433 Califor-

nia Street, San Francisco, Calif. Prof. George S. Wilson, Engineering Experiment Station, University of Washington, Seattle, Wash.

# Industry's Next Job— Public Safety

**Industrial Accidents Are** Being Brought Under Con. trol; Industry Turns Attention to Street Accidents

THERE was a time—and it lies within the memory of most of us-when industry accepted accidents as one of the inevitable evils that go along with the job. None of us had heard of a public accident problem 25 years ago. The automobile was in its infancy and the real excitement on Main Street was caused by the horse that ran away, banging the wagon against stepping blocks and gas light poles.

In early discussions of safety, therefore, emphasis was directed against accidents which were occurring in industry. Machinery had no guards; there were no goggles, no respirators, no safety shoes. There was nothing except a fatalistic attitude toward accidents. But I suppose the cost of these accidents formed a fairly appreciable part

of the cost of the product.

Of course there were far-sighted individuals who protested against this waste. Industrial leaders themselves endeavored to correct a bad situation. Finally Workmen's Compensation laws were passed and both management and labor began to benefit from them. Accidents began to cost money in earnest and a real effort was started to prevent them. Since that time the safety movement has steadily grown, has rallied millions to its support and has returned dividends in cash and happiness to all concerned.

#### **Much Progress Made**

Industry has made considerable progress since the beginning of the present century. The abolition of child labor, the introduction of the principle of minimum wages, collective bargaining, maximum hours of work, good working conditions and comprehensive safety programs-all of these are milestones along the path of progress and tend to better understanding between labor and management.

by John B. Gibson

Director of Publicity, Hawthorne Works, Western Electric Company

In these past 25 years the productivity of the industrial worker has about doubled while the work week has been reduced 10 per cent.

In 1933, Chicago's manufacturing industries totalled 7,161 plants with a total of 247,672

Many are buying new automobiles-cars that pick up quicker and go faster than ever before. Passenger automobiles registered in this country in 1934 were almost one million more in number than they were in the previous year. There are today more than 20,000,000 automobiles in use in the United States...

Is it any wonder that public safety now constitutes one of our most important social problems? Is it any wonder that the National Safety Council reports that for the first quarter of 1935,

motor deaths approximate 7,060?

Most workers have learned from experience that industrial accidents can be reduced, even eliminated. Practically all of them realize that accidents can be banished from a plant in a relatively short period of time. And those of us who are of industry will admit, I think, that the predominating influence in the reduction of accidents is discipline.

The Hawthorne plant of the Western Electric Company in the past four years has had but one industrial death, while in the same period 23 of my fellow workers have lost their lives in accidents, most of them occurring while they were driving or walking in the streets of our city?

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the community are closely interwoven. The worker in the shop by day becomes a civic leader, the village trustee, the member of the school board by night. The experience gained at the desk and at the machine have their corresponding values in community life and activity...

In my home town of LaGrange, Illinois, a civic organization started a drive against public accidents several years ago....

With the support of the village authorities, a comprehensive public safety program was outlined, to start with one week of intensive effort (largely of a publicity nature) and to follow with a steady and constant drive against home, street, and school accidents.

In selecting chairmen and workers of the various committees we were fortunate in being able to secure individuals who already were safety minded and awake to the needs of the occasion. Among the workers were representatives of the packing industry, electrical and telephone manufacturers, utilities, food products, steel industry, and the small shop. It was not necessary to sell these men anything. They merely needed the signal to go ahead, and go ahead they did with a minimum of delay and with a maximum in results. The press, bill boards, direct mail leaflets, radio, schools, churches, service clubs, American Legion, Scouts-all these methods and groups were used with success.

#### Free Inspection

Safety lanes were set up and for ten days automobiles were given complete and free inspection of lights, ignition, and mechanical equipment. The first few days were typical of any effort to arouse a community interest. It was slow and tedious work. But the safety lane provided a dramatic means of proving something and through that one agency we were able in a week to gain the cooperation of our local drivers. For three years this type of campaign was carried on, until in 1932 the community had only 89 auto accidents, or a decrease of 79 from the 1929 high record of 168 accidents. Our best record was made in 1933 when this number was reduced again to 51 accidents for the entire year. As a result LaGrange won first place among cities of 10,000 to 25,000 population in the second Annual National Traffic Safety Contest. In 1934 we lost ground when improved highways through the town brought increased traffic and greater speed, particularly at night. Several deaths resulted. But improvement has been made this year with only 33 accidents, 16 of which involved personal injuries, having occurred during the first six months of 1935.

#### Screw Thread Standard "Should Serve as Model"

I was much interested in your paper on "Some Fundamental Principles of Screw Thread Standardization" which was published in the September, 1935, issue of Industrial Standardization. The work done by the committee of which you are the chairman is of far-reaching importance and should serve as a model for similar standards prepared under the American Standards Association.-D. S. Jacobus, The Babcock & Wilcox Company, in a recent letter to Ralph E. Flanders.

#### **Buick Head Announces** No-Accident Campaign

Harlow H. Curtice, president and general manager of Buick Motor Company, has announced the inauguration of a special Buick no-loss-time accident campaign. The success of the Wilson No-Accident campaign in the 26 GM divisions furnished the inspiration for the Buick effort. During the Wilson campaign Buick plants showed a gain of 63.7 per cent in no-loss-time accidents during April, May, and June as compared with similar months last year.

C. E. Wilson is a vice-president of General Motors Corporation.

#### Add Stock Varieties of Sweeps In Simplified Recommendation

The Simplification and Standardization Committee of the American Brush Manufacturers' Association has submitted a revision of Simplified Practice Recommendation R88-29 for Floor Sweeps to the Division of Simplified Practice of the National Bureau of Standards with the request that a copy of the revised schedule be mailed to all interests for consideration and ap-

The revision consists of the addition to the initial schedule of a recommendation covering stock varieties of household, institutional, garage, warehouse, and industrial sweeps.

When accepted by the industry, the revised schedule will be known as Simplified Practice Recommendation R88-35, Floor Sweeps (Household, Institutional, Garage, Warehouse, and Industrial), and will remain in effect until it is revised by the Standing Committee of the industry.

## Standards Make Effective Weapons In Competitive Merchandising<sup>1</sup>

by Joseph Wayer

Hommann, Tarcher & Sheldon, Inc. Advertising Agency Up - to - Date Merchandisers Use Standards, with Advertised Brands, to Win Buying Public

STANDARDIZATION of consumer goods is just getting a healthy start.

Standards have quietly been going ahead. Not, mind you, because Mrs. Consumer has demanded them. But because they are good sales ammunition; because they are something which Mrs. Consumer can be *persuaded* to demand!

The theme of the National Retail Dry Goods Association mid-year meeting in Chicago, June 12. was "Serviceability." (Serviceability is the chief quality which standards seek to indicate.) Paul Hollister, late of Batten, Barton, Durstine, and Osborne and now executive vice-president and publicity director of R. H. Macy & Company, expressed himself, for one, as in favor of supplying customers with more exact information about serviceability. Stephen A. Walser, vice-president of Schwarzenbach. Huber & Company, wrote an article for the association's bulletin headed, "Would Set Minimum Standards." The tone of these discussions was matter-of-fact.

This new tone on the part of practical business men is not accidental. It is realistic. Standards are actually changing products, affecting marketing, influencing advertising. And all this at an accelerating rate.

In a broad sense, every purchase is made to a standard. It may be a vague, undefined sort of standard, but it exists. When your wife buys a cantaloup, the feel of its end under her thumb is her standard of ripeness. Not, alas, a very trustworthy standard.

But the sense in which household economists are using the term is narrower and more specific. They want more accurate standards of satisfactory quality and performance by which to purchase consumer goods. These standards may be as simple as "Grade A" milk, or as complex as an A. B. C. audit of a publication's circulation. But they must be clear, consistent, impartial information.

There is good precedent for their objective. Our whole civilization has been built upon increasingly precise standards of measurement—time. space, gravity, viscosity, temperature, etc. Mass production would be impossible if we measured machine parts with a tape measure.

Similarly, it is possible that mass consumption is now being retarded by the time, trouble, and error involved in making purchases according to inaccurate, inadequate standards. Better buying standards might give us more time and money with which to buy, and to consume. The idea makes sense, theoretically.

#### Business Finds Uses for Standards

It apparently also makes sense practically. Merchandising, at times, finds standards (or the rudimentary materials of standards) decidedly useful.

Take an example. Men, a few years ago, wouldn't buy cotton suits for summer. Not for lack of style, or economy, or comfort. But because they had no standard by which they could judge whether the darned things would shrink. Sanforizing—a process carried out to definite standardized limits of tolerance—supplied the standard. And now advertising is rapidly establishing this standard.

Without that standard, advertising of such clothes would either have talked a lot of hot air, and then quit, or not have existed at all. With the standard, a whole new industry is growing, prospering—and advertising.

Note, too, that standardization isn't enough. The

<sup>&</sup>lt;sup>1</sup>Abstract of an article published in *Printers'* Ink, Aug. 22.

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qualities of style, fit, comfort, and economy are just as important as ever.

Even at this early stage, and with no consumer demand yet active, one manufacturer saw an opportunity to use the movement effectively. Chatham brought out a new sheet, with a huge label covered with specifications. And Chatham got distribution practically over night.

In the meantime, Pequot goes a step farther and accepts U. S. Government specifications as a minimum standard for its own type of fabric, then guarantees each and every Pequot sheet to exceed this standard. (The guarantee is necessary because there is as yet no impartial public certifying authority for consumer goods.)

#### Smart Selling

Moves like these are smart selling, you will admit. But why are they so smart?

The reason is that standards, of themselves, represent a tangible value to the consumer, a positive assurance of worth. That assurance has power to make sales.

In the dress business the confusion of sizes is appalling. It slows down sales—requiring fittings. It causes returned goods and exchanges. Yet standardization has not been applied, because the dress business as a whole does not have to unite to fight some other industry.

But other industries, where the need is not nearly so apparent, have profitably adopted standards.

In 1923 the Pennsylvania oil industry was in trouble. Flush new Western pools of crude had made it unprofitable to pump out Pennsylvania Grade Crude to sell at a competitive price. And the consumer by and large saw no reason why he should pay extra for Pennsylvania motor oil.

Then the Pennsylvania Grade Crude Oil Association was formed. It did several things, two of which are particularly important to this discussion:

1. It set up minimum specifications for motor oils made 100 per cent from Pennsylvania Grade Crude (constituting thereby a minimum standard).

2. It advertised the standardized products.
When I say "standardized" I don't mean

When I say "standardized" I don't mean uniform. Above the minimum quality of emblem Pennsylvania oils the sky was, and is, the limit. These oils actually have a retail price range from 12½ cents to 35 cents per quart. But the emblem sets a lower limit of quality, a safeguard to consumers. The Association's program has proved, in the last twelve years, a remarkable success. Both standardization and advertising are essential parts of this picture.

There are many other instances of this kind. The Underwriters' Laboratories' standards for electrical equipment and the American Gas Association seal for gas equipment are examples.

#### "Pre-Standards"

The various testing bureaus maintained in increasing numbers by stores or magazines are only "pre-standards." Why? Because they lack two vital qualifications of a true standard—(a) a clear definition of the "models" by which goods are approved or rejected, (b) establishment of those models by authority, custom, or general consent. Lacking these, the custom of testing or granting seals of approval is only as good as the people behind it. In unscrupulous or careless hands, it can degenerate into pernicious ballyhoo. In conscientious hands, it is enormously valuable in raising and maintaining the quality of consumer goods.

As many advertising men have pointed out, in many consumer goods "quality" and "performance" cannot yet be measured directly, and even the factors upon which they depend may, at present, be out of range of laboratory technique. This is a big obstacle to standards, for standards must be exact and definable. It's not a permanent obstacle. The reason is that nobody is so anxious for an exact measurement of an improvement as the promoter of that improvement. He will invent or refine apparatus until it measures the qualities his goods possess. If his machine is honest, and not just a demonstrating trick, it enlarges the technical resources available for standardization.

The extreme difficulty of coming to final conclusions about quality and performance, and setting up sound "merit ratings." is not going to stop anybody from trying. But it certainly should lead home economics experts and professional consumers' friends to maintain at least as critical an attitude toward the use of specifications as they do toward advertising.

If this critical attitude is *not* maintained, the entire standards movement might be discarded by a new crop of muck-rakers. And that would prove real loss to consumers.

#### Question Results

A final hurdle for standardization is the difficulty of fitting it into accustomed modes of thinking. "What would it do to me?" is the rather fearful unspoken question. Some of the variations on this theme are given below, with rather sketchy but, I hope, suggestive answers.

"My product is an advertised quality leader. Standardization would pull me down to the level of my cheapest competitor." Not necessarily. If you are making the kind of

product which can logically be graded (a series of minimum standards) you'll be the top grade! How far above that you can hoist yourself would depend then, as now, on your advertising resourcefulness. At least you then wouldn't have to compete with the poorest of your competitors, as you do now. Without standards, you have to lick the whole pack.

"How about these chiselers who would claim to pass certain standards and not do it?" Some impartial and trustworthy assurance of conformity is necessary, but very hard to obtain. In the long run, Federal inspection and certification will probably be best. This is difficult, expensive and by no means infallible. Having Uncle Sam inspect and certify grades, however, offers some strong advertising material.

"Our product is complex. We can't test its utility or its desirability for use directly. How can we fix standards?" Research, usetests, and time will help. Competition may help you develop standards. In gasoline, private chemical engineers suggested octane ratings — a tremendously useful "knock-rating" standard, but not all-embracing in its utility because it measures no other qualities. The same limitations apply to Viscosity Index as a guide to performance of motor oils. These things grow and change. The chief danger is that half-baked pseudo-standards will be adopted too soon.

"Won't our brand get lost?" Probably you've been trying to set up your brand as the standard. When good all-inclusive standards are adopted in your field, and people find them useful, your brand loses that special advantage it held. This is one of the chief and valid objections to standards from the individual manufacturer's standpoint. But your industry as a whole may gain so fast as a result of more consumer confidence, the advocates of standardization point out, that you won't lost a dollar's worth of volume. And, as hinted before, your advertising agency should be resourceful enough to keep you distinct from the rank and file. Standards aren't and won't ever be everything to consumers.

"But our costs are high, and we must get a higher price than the others in our grade." If you must maintain an artificial and semi-monopoly to pay dividends, you are a burden on the consumer. Standards will hurt you. They aim to benefit the consumer.

"When people start asking for standards, we'll adopt them." A few are asking now. Not many. Not many are demanding super-accurate television sets, either. It takes advertising of something tangible to bring demand to life. And whenever an advertiser sees a competitive advantage in the movement, advertising will bring demand.

#### Confusion Is Obstacle To Standardization

Perhaps the chief obstacle to the progress of standards is confusion. People who really want standards tend to get sidetracked on the side issues. The following list, with its examples, may clarify the situation:

- A. Pre-Standards (criteria tending toward standards )
  - 1. Rule-of-thumb tests

Spit on your finger to see if it's linen

Heft the grapefruit before you buy

2. Identified merchandise (brands)

Pepsodent Ivory

3. Laboratory tests (possibly made by stores)

U. S. Testing Co.

Better Fabrics Testing Bureau

4. Specification (data obtained by test)

Weight

Breaking strength

Viscosity

5. Endorsements (personal stand-

"Aunt Gertie says it's best"
Mrs. Richbilt sleeps exclusively
on this mattress

6. Seals of Approval (corporate standards)

Good Housekeeping Institute A.M.A. Seal

- B. True Standards
  - 1. Minimum requirements Bonded whiskey
  - 2. Grades and ratings
    Octane numbers
    Grade A and Grade B milk

3. "One best"

I.E.S. Student lamp

To summarize briefly: standards and advertised brands are not *alternative* methods of distributing goods. No defense or attack is necessary. The two work together already as tools of competitive enterprise. They will do so increasingly in the future.

## The New American Standard

Screw Threads for Bolts, Nuts, Machine Screws, and Threaded Parts (Bl. 1-1935)

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Gives in Comprehensive Form Up-to-Date Data on Major and Minor Diameters, Tooth Forms, Pitch Diameter, and Finish



### **Industry Says**

"The adoption of standard screw threads has greatly simplified our problems of manufacture and assembly."—General Electric Company.

"In the interest of economy and elimination of misunderstanding and confusion, this screw thread standard should be universally adopted."—New York Central System.

"The screw thread . . . . . ties together the whole mechanical skeleton of our civilization."—Ralph E. Flanders.

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